COASTAL BARRIER RESOURCES ACT

HEARINGS

BEFORE THE

SUBCOMMITTEE ON
ENVIRONMENTAL POLLUTION

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

NINETY-SEVENTH CONGRESS

FIRST AND SECOND SESSIONS

ON

S. 1018

A BILL TO PROTECT AND CONSERVE FISH AND WILDLIFE
RESOURCES, AND FOR OTHER PURPOSES

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CONTENTS

AUGUST 13, 1981

Page

Chafee, Hon. John H., U.S. Senator from the State of Rhode Island, opening statement of 1

Witnesses

Bendick, Robert, assistant director, Rhode Island Department of Environmental Management 33

Bewick, John, Secretary Environmental Affairs, presenting testimony for Hon. Edward J. King, Governor, Commonwealth of Massachusetts 30

Prepared statement 74

Boothroyd, Jon, department of geology, University of Rhode Island 45

Cabot, Jane, town council president, Little Compton, R.I. 8

Calhoun, Hobson, Audubon Society of Rhode Island 43

Prepared statement 85

Delaney, Richard, chairman, New England/New York Coastal Zone Task Force, coastal zone management program 22

Prepared statement 62

Fegan, Barbara, League of Women Voters, Wellfleet, Mass. 60

Prepared statement 122

Godfrey, Paul, former member, U.S. Department of Interior's Task Force on Barrier Islands, University of Massachusetts at Amherst 52

Prepared statement 106

Griscom, Tom, Westerly, R.I. 12

Hartley, John, town council president, Charlestown, R.I. 9

Hoffman, Kenneth, Conservation Law Foundation 47

Prepared statement 90

Humphries, Stan, Association of Flood Plain Managers 20

Prepared statement 67

Langiois, Gaytha, Ecology Action for Rhode Island 57

Prepared statement 110

Lyons, John, Chairman, Rhode Island Coastal Resources Management Council 35

Prager, Anna, South Kingstown, R.I. 11

Rowan, Dana, New England Chapter, Sierra Club 49

Prepared statement 100

Strouss, David, executive director, Coalition of Coastal Communities 4

Varin, Daniel, Chief, State Planning, Rhode Island Statewide Planning Program 39

Prepared statement 80

Additional Material

Conservation Law Foundation of Rhode Island, statement of 95

Letters:

Westerly, R.I., town of 14

Watch Hill Fire District 16

Weekapaug Fire District 17

Nope's Island Association, Inc 19

S. 1018, reprint of 123

OCTOBER 21, 1982 (p. 137)

Chafee, Hon. John H., U.S. Senator from the State of Rhode Island, opening statement of ..... Page 137

WITNESSES

Bumpers, Hon. Dale, U.S. Senator from the State of Arkansas 139
Evans, Hon. Thomas B. Jr., a Representative in Congress from the State of Delaware 142
  Prepared statement 189
Hair, Jay, executive vice president, National Wildlife Federation 168
  Prepared statement 237
Rockefeller, Laurance, Americans for the Coast 165
  Prepared statement 226
Scott, James, National Association of Homebuilders, accompanied by Scott Slesinger, assistant legislative counsel, National Association of Homebuilders 173
Watt, Hon. James G., Secretary, Department of the Interior 146
  Prepared statement 216

ADDITIONAL MATERIAL

"Saving The American Beach": A position paper by Concerned Coastal Geologists 200
Thurmond, Hon. Strom, U.S. Senator from the State of South Carolina, statement of 145
Views on S. 1018 by the Departments of:
  Interior 155
  Transportation 160
  Army 161

FEBRUARY 3, 1982 (p. 249)

Chafee, Hon. John H., U.S. Senator from the State of Rhode Island, opening statement of 249

WITNESSES

Bordelon, Gerald, chairman, Louisiana Coastal Commission 263
  Prepared statement 334
Davidge, Ric, Special Assistant to the Assistant Secretary for Fish, Wildlife, and Parks, Department of the Interior, accompanied by Pete Raynor and Bob Peoples, Coastal Barriers Task Force 250
  Prepared statement 282
Frank, Dr. Neil, Director, National Hurricane Center, Miami, Fla 256
  Prepared statement 319
Hightower, Michael, General Land Office, State of Texas 272
  Prepared statement 345
Jankel, Eric R., executive director, Narragansett Bay Water Quality Management District Commission, Providence, R.I., member, American Planning Association 260
  Prepared statement 322
Rocque, Arthur J., Jr., director of planning, Connecticut Department of Environmental Protection 277
Stewart, Sharron, National Advisory Committee on Oceans and Atmosphere, Washington, D.C. 275
  Prepared statement 354

ADDITIONAL MATERIAL

Interior, Department of the, publication entitled "Undeveloped Coastal Barriers: Definitions and delineation criteria 291
Statements:
  Cohen, Hon. William S., U.S. Senator from the State of Maine 362
  American Red Cross 365
  Center for Environmental Education 366
  Coastal States Organization 357

Statements—Continued Page
- Committee to Preserve Assateague Island 368
- Garden Club of America 371
- Monmouth County Planning Board 373
- Southwest Florida Regional Planning Council 375
- Tampa Bay Regional Planning Council 377

Undeveloped Coastal Barriers: Definitions and delination criteria 291

COASTAL BARRIER RESOURCES ACT

THURSDAY, AUGUST 13, 1981

U.S. Senate,
Committee on Environment and Public Works,
Subcommittee on Environmental Pollution,
Providence, R.I.

The subcommittee met at 9:45 a.m., at the Rhode Island College, Gaige Auditorium, Hon. John Chafee (chairman of the subcommittee) presiding.

Present: Senator Chafee.

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator Chafee. I want to welcome everybody to the hearing this morning.

We are holding the hearing this morning on the coastal barrier resources bill. It seems entirely fitting that we hold it right here in the State of Rhode Island where we are blessed with miles of extraordinary beaches, much of which has been preserved—some preserved by the State, some preserved by various private agencies. Others, of course, are being developed rapidly.

The coastal barrier resources bill which I have introduced in the Senate does this: It prohibits the Federal Government from funding commercial or residential growth on certain designated beaches. We don't prohibit such development on those beaches that have already been developed but, instead, we provide that the Secretary of the Interior, using certain criteria, shall choose those beaches on the east coast and the gulf coast that have not been developed so far. Those designated beaches then, under this provision, shall no longer be eligible for Federal funding in the form of roads, bridges, sewage plants, et cetera.

Rachel Carson, in "The Sea Around Us"—that magnificent book that many of you are familiar with—states: "The continents themselves dissolve and pass to the sea, in grain after grain."

Barrier beaches and islands are the protection that prevents much of this continent's rim from dissolving into the sea. These barrier islands and beaches are the first line of defense against shifting tides, raging hurricanes and swift ocean currents. These land forms are not suited to alteration by man.

The coastal barrier resources bill before us today, which we look forward to hearing your comments upon, presents a unique opportunity to protect these natural treasures and at the same time save the taxpayers money.

Of the 1.5 million acres of barrier beaches and islands which stretch 2,700 miles along the Atlantic coast and the gulf coast, somewhat more than one-third is protected by either State, Federal, local, or private sources. As I mentioned before, in the State here we have some protected by the State, some by the Audubon Society, and some by the Nature Conservancy. So it is, of the total beaches, about one-third in the Nation—that is on the east coast and gulf coast—are protected.

One-third are already gone. They are developed. We can't do anything about them. A little less than one-third is still undeveloped but still unprotected.

Here in Rhode Island we have approximately 14 miles of undeveloped barrier beach shoreline still undeveloped, forming about 2,000 acres of land. These include parts of Little Compton, Card Ponds, Green Hill, East Beaches, Quonochontaug, Maschaug Ponds, Napatree, and Block Island.

I strongly believe that Congress should make every effort to conserve these undeveloped barrier beaches, and all of these undeveloped barrier beaches along the Atlantic and gulf coasts, for three reasons. These are the reasons I am supporting this legislation, developed it, and am pressing it so hard.

First, these beaches and islands are places of incredible beauty that deserve to be protected so they can be open for enjoyment by everybody, all the citizens of our country. I don't think they should be the exclusive property of a selected group of people who have the money to buy and build expensive buildings on these beautiful, unspoiled areas. That is the first reason. Preserve them for everybody.

Second, the grassy dunes, salt marshes, and tidal estuaries of the barrier islands provide essential areas where healthy wildlife populations can find shelter, food and a tranquil place to raise their young. Barrier beaches and their neighboring aquatic systems are places to nest, nurse, feed and rest for millions of migratory waterfowl, shore birds, and other wildlife.

I think we are all familiar with this in the State of Rhode Island. In back of those islands and beaches where those brackish ponds are are incredibly rich areas for wildlife.

As roads, sewers, bridges and buildings are constructed on these fragile barriers, the beaches and dunes are eroded, adjacent wetlands are disrupted. Slowly but inevitably fish and wildlife are driven from their homes and a precious natural resource is lost. We all know that very well here. So that is the second reason, the protection of this chain of life that starts in back of these beaches.

My third reason for seeking the prohibition of Federal spending on these undeveloped barrier islands is that it makes no economic sense for the Federal Government to be in the business of subsidizing development in these volatile areas. Yet—listen to this—the Interior Department estimates nearly half a billion dollars in federal funds were spent on barrier island development between 1976 and 1978. In 3 years the Federal Government spent nearly a half a billion dollars to contribute to the destruction of these essential areas.

This funding was used for Federal flood insurance, for bridges, for roads, for sewers, for loans for economic development, for loans, and for home construction, to name just a few projects. One example of this wasteful Federal spending is a $65 million plan to replenish sand on a well-developed beach, despite the warnings from geologists that the sand will merely disappear once more to the tide and surf.

Included in the 1982 reconciliation budget bill, which just passed and which the President just signed, is a prohibition of Federal flood insurance on these undeveloped barrier beaches and islands after October 1, 1983.

Frankly, I wanted the Federal flood insurance for these areas to stop now. Not the areas where it is developed, not the areas where it is undeveloped and somebody has a house. Nobody would have their Federal flood insurance taken from them. But there would be no Federal flood insurance provided for future construction. That was taken care of in the so-called reconciliation measure. Starting October 1, 1983, there will be no more Federal flood insurance for new construction.

That is an important first step. I am glad we took it. I hope it doesn't result in a mad rush for development immediately to beat the deadline.

But there are other forms of Federal funding on these undeveloped areas that should be prohibited as well. The flood insurance has been covered. I would like to pay tribute to Congressman St Germain from the First Congressional District in Rhode Island because that bill prohibiting the Federal flood insurance came out of the House Banking Committee in the House where Congressman St Germain presented it. He had a good ally in the form of Congressman Tom Evans from Delaware who was a cosponsor of the total legislative package, with me. But Congressman St Germain picked up on it, included it in that banking bill, in the House bill, the prohibition against the Federal flood insurance, stuck by his guns, and out of the conference—the Senate didn't have it in there—out of the conference obtained a compromise that starting October 1, 1983, the insurance ends. So I want to pay tribute where tribute is due to Congressman St Germain for the work he did.

In the context of this country's fiscal austerity, it seems to me subsidizing development of barrier islands by the Federal Government is really a travesty. We are reducing school lunch programs. We are reducing support for medicaid and a host of other programs. And certainly it makes no sense to spend Federal dollars to enrich a group of developers whose goals are hardly compatible with the public's interest or the national interest. So there is no justification for that kind of spending.

If we had more money in our Federal treasury, I would press for the Federal Government to acquire all the undeveloped barrier beaches and islands as national wildlife refuges. But recognizing the tight budget, we must look for other ways to conserve these undeveloped barrier lands from future degradation and exploitation. Cutting off Federal funding in these areas makes absolute sense.

It has been estimated that in the next 20 years it could cost this Government as much as $11 billion if we continue to fund development on barrier beaches and islands that remain unspoiled. With the enactment of the Coastal Barrier Resources Act—the act we are considering here today—the taxpayers would save an estimated

$200 to $500 million a year and at the same time, of course, protect these resources.

It should be noted that there are exceptions to the spending prohibitions in my legislation. Federal assistance for coastal water-dependent energy activities and exploration would be permitted. Federal funds would also be available for air and water navigation aids and devices, for fish and wildlife protection and enhancement programs, for national security activities, and for disaster relief to save human life.

There is an important point to note. This bill is not an attempt to change State and local laws. It is not an attempt to impose Federal laws on private land use. Private property rights are protected under this bill. Landowners are free to do what they will with their land, but they are at their own financial risk. We are not going to have the Federal Government subsidizing it for them. But we don't prohibit South Kingstown from any development on those beaches down there. If somebody wants to build a house on the beaches, that is their business. It is just we are not going to build a Federal road or a Federal bridge for them.

I look forward to incorporating the views of the witnesses here today into the final bill which will be referred to the Environment Committee, which I sit on, and then we will hopefully mark it up and pass it on to the entire Senate where I look forward to its passage. So I am glad everybody is here.

We will move right along now with the first panel, which has David Strouss, executive director of the Coalition of Coastal Communities—why don't you come right up and take your seats?—Jane Cabot, town council president, Little Compton; John Hartley, town council president, Charlestown; and Steven Alfred, town manager of South Kingstown.

Ms. **Prager**. I am representing Steve.

Senator **Chafee**. And I understand Tom Griscom is also here from Westerly. Is that correct?

Mr. **Griscom**. Yes, sir.

Senator **Chafee**. Why don't you come up, too, and be in this panel.

We have represented here on this first panel people from the towns affected—South Kingstown, Miss Cabot from Little Compton, John Hartley from Charlestown, and Mr. Griscom from Westerly.

Do you have a statement, David?

Mr. **Strouss**. Yes, I do.

Senator **Chafee**. I have it here. OK.

STATEMENTS OF DAVID STROUSS, EXECUTIVE DIRECTOR, COALITION OF COASTAL COMMUNITIES; JANE CABOT, TOWN COUNCIL PRESIDENT, LITTLE COMPTON, R.I.; JOHN HARTLEY, TOWN COUNCIL PRESIDENT, CHARLESTOWN, R.I.; ANNA PRAGER, SOUTH KINGSTOWN, R.I.; AND TOM GRISCOM, WESTERLY, R.I.

Mr. **Strouss**. Senator, the Coalition of Coastal Communities would like to thank you for the opportunity to testify on the Coastal Barrier Resources Act. I would like to present a brief overview of some of the pressures and problems confronting our barrier beaches in the state which are of great concern to the coastal communities, under whose jurisdiction these barrier beaches fall.

The value of coastal barriers as ecological systems which provide habitat for fish and wildlife and as a natural protective barrier against storms and hurricanes has been well-documented. Many Federal policies and programs currently exist which are in direct contradiction to this knowledge we now possess regarding barrier beaches and islands and their suitability for development.

On October 8, 1980, the Coalition of Coastal Communities unanimously passed a resolution to support Federal legislation ending federally subsidized programs which encourage development on barrier beaches.

Rhode Island possesses 3,660 acres of coastal barriers, according to the draft environmental report by the Department of the Interior. The 850 acres of protected barrier beaches and much of the 1,450 acres of remaining undeveloped and unprotected coastal barrier beaches are a tremendous asset. These coastal barriers provide important recreational opportunities for the entire State. They help maintain a healthy near shore and coastal pondfish and shellfish population. They also assist tourism and are symbolic of Rhode Island's commitment to protect its most important natural resources.

An amazing statistic that we came upon is only 7 percent of our beaches in the lower 48 States are available for public recreation, and almost all of these are overcrowded. Half of all Americans live within 50 miles of the beach. Over 75 percent of the Nation's growth occurs in this crowded border.

The very survival of a coastal barrier depends upon its ability to shift and migrate up or down the coastline in response to the offshore motion of waves pushing sand along the beach and in response to rising sea levels. The barrier beaches' movement has been characterized as similar to a tank tread's movement of rolling over on itself.

Development impacts the ability of the barrier beach to migrate and shift, to replenish itself with sand, and to resist the eroding forces of the sea, and to stay intact. The development of the barrier beach complex also endangers human life, adversely affects the public's recreational areas, increases danger and property loss from flooding, lowers productivity of coastal ponds and estuaries, and places an unfair burden on the taxpayer.

Local and State governments in Rhode Island have been in the forefront nationwide in using their powers to protect undeveloped barrier beaches. In addition, many landowners have preferred to keep their barrier beach property in its natural state. The town of South Kingstown has established a precedent by zoning Green Hill and Cards Pond barrier beaches as high flood danger districts which prohibit residential development as a reasonable use of the barrier beach complex. That has been challenged in the courts, and the State superior court has ruled that the ordinance constitutes a taking.

This case is now on appeal to the State supreme court, and its importance as a precedent for barrier beach protection has been recognized nationwide as the U.S. Attorney General's office, National and State environmental groups, as well as State and local agencies have joined the appeal on behalf of the town of South Kingstown.

Although the State, through the coastal resources management council, has adopted protective measures for barrier beaches and sand dunes, orders stopping construction on barrier beaches were struck down originally by the Supreme Court in 1973. New regulations prohibiting development on undeveloped barriers and sand dunes have been successful but are still somewhat restricted.

Another recent legal challenge has risen on the council's application of these procedures in granting permits to develop in a sand dune field behind Coast Guard Beach.

The remaining instrument for protecting barrier beaches in this State has been through the actions of private landowners. Pressures such as increases in tax assessment based upon development value and management and financial problems by private parties which have allowed public use, such as the fire districts in Westerly and the Audubon Society, reveal the difficulty and uncertainty of this means to provide the permanent protection of these resources.

A Federal law, the purpose of which is to protect coastal barrier resources and to end major development incentives created by Federal funding, will greatly assist these State, local, and private protection efforts. This law may help in the defense of these local and State ordinances and regulations which protect barrier beaches and the public's health, safety, and welfare when they are challenged in the courts.

Development pressures on Rhode Island's coastal barriers continue to be great, despite these protective measures. In Washington County, the area with the most miles of barrier beach in the State, the coastal communities grew in population by 62 percent from 1960 to 1970 and 40 percent from 1970 to 1980. New industrial growth in the State has been moving southward. Three major highway projects and a bridge project are planned which will make the area even more accessible to the commuter from Providence and the seasonal homeowners.

S. 1018 is an important first step in relieving the pressures on these coastal barriers. The Federal program which has had the most effect on barrier beach development has been the Federal flood insurance program.

We strongly commend Congress for adopting a cutoff on Federal flood insurance for new construction on undeveloped coastal barriers after October 1983 under the Federal Flood Insurance Act. However, many of the coastal communities have expressed concern that there will be a boom in development on coastal barriers between now and that date. Passage of the Coastal Barrier Resources Act, S. 1018, thus becomes more important, especially in Rhode Island where there is not a great amount of undeveloped barrier beach land remaining and in light of the national development rate of 6,000 acres per year.

Other federally subsidized programs can be very costly to the community. The cost for infrastructure development on coastal barriers such as roads, wastewater treatment plants, and water and sewage pipelines is two to six times as great as construction on the mainland. Operation and maintenance costs incurred by State and local government is tremendously high due to storm damage and the movement of sand and entire barrier islands. Single family housing typifies the kind of construction on barrier beaches in Rhode Island. In the town of South Kingstown, an average new home's costs outweigh the revenue generated from taxes. This deficit can be expected to be even greater on the removed coastal barriers which are difficult to service.

Rhode Island's Federal tax dollars have also been paying for the $60 million beach replenishment project in Miami Beach—that is, Rhode Island's Federal tax dollars—the $40 million cost of replacing the Dauphne Island Bridge destroyed by Hurricane Frederick, and the Army Corps of Engineers' plans for a $90 million stabilization project for Oregon Inlet in North Carolina. Rhode Island communities have resisted most of these expensive types of federally subsidized programs on barrier beaches, other than flood insurance.

The Coastal Barrier Resources Act will be a big first step by the Federal Government. This action is needed immediately and a more comprehensive barrier beach protection program will be needed in the future. James Walsh, Acting Administrator for NOAA, has said "that the Nation is in the most vulnerable position in history should a major hurricane strike, and that a far smaller storm than the hurricane that killed 6,000 persons in Galveston in 1900 could bring a far more tragic disaster."

In 1938, a hurricane destroyed all the homes on Green Hill Beach, killing 48 people and causing total damages in the Northeast of $306 million. In 1954, Hurricane Carol, moving at more than 30 miles per hour, destroyed all the rebuilt homes on this barrier beach and caused total damage in the Northeast of $461 million. Protecting coastal barriers can protect human life and property and prevent further tragedies.

Senator CHAFEE. Thank you very much, Mr. Strouss, for that very good statement.

I think we are having indications that this effort is supported by those communities that are affected most directly. There is one question I would like to ask you. You say a more comprehensive barrier beach protection program will be needed in the future. How would it be more comprehensive?

Mr. STROUSS. I believe that that would come as a result of the study efforts that you propose in your legislation from the Department of the Interior. But it may involve whatever they discover is needed, from acquisition to—I imagine acquisition or other kinds of programs—to provide for permanent conservation and public use of the barrier beaches.

Senator CHAFEE. What is the Coast Guard Beach you are talking about? Where is that?

Mr. STROUSS. That is on Block Island.

Senator CHAFEE. Fine. Thank you very much for a good statement.

Ms. Cabot?

STATEMENT OF JANE P. CABOT

Ms. CABOT. First I would like to thank you, Senator Chafee, and the committee for asking me to appear and comment on S. 1018, commonly known as the Coastal Barrier Resources Act.

My name is Jane P. Cabot. I am president of the Town Council in Little Compton, R.I.

Little Compton is a rural community in the southeasternmost portion of Rhode Island. It has a population of 3,085, according to the last census of 1980, and a land area of 21.5 square miles, for a population density of 143 persons per square mile of land area. It has a five-member town council type of government. A planning analysis done by the Department of Community Affairs in 1974 states that 60 percent of the land area is vacant while another 18.9 percent is in agricultural use. Dwellings occupy only 9.8 percent of land.

Little Compton's southern boundary of approximately 6 miles borders on the Atlantic Ocean. There are eight separate and distinct barrier beaches that make up 2.5 miles of this shoreline. All but one of these beaches are undeveloped, unprotected, and privately owned. One beach, 2.5 tenths of a mile, is owned by the town and is used as a public swimming area. This beach has no permanent structures and is considered undeveloped. The entire area of the eight system units consists of approximately 125 acres of sand, sand dunes, cobble stones, wetlands, beachgrass, brush, and other forms of vegetation. The town considers these areas to be very valuable fish and wildlife resources as well as a valuable groundwater resource.

It is absolutely necessary that Little Compton protect these resources. The town has limited power through town ordinances to accomplish this task. At what point does local or State regulations constitute a taking of a person's property has become an issue in several Rhode Island court cases. The Federal Government makes local control that much harder by making development on barrier beaches economically feasible through Federal subsidies and assistance. The Federal flood insurance program has the greatest effect of any of these subsidies on Little Compton.

One can develop his or her property, bulldoze and wipe out fish and wildlife resources, destroy the dunes and the vegetative growth that buffer wave and storm action from the sea, and never fear any economic loss. There is federally subsidized insurance to reimburse them for their losses caused by a hurricane or any storm that causes serious flooding problems, federally subsidized insurance that you and I pay for. If one feels that this type of insurance is good, why not expand it to include subsidized insurance for wind damage or fire damage. They are catastrophes, too. It would make just as much sense.

I have been tremendously encouraged by the announcement recently that Federal flood insurance rates were being adjusted "to bring the rates more in line with the risks being insured." Also, that all federally subsidized flood insurance for barrier beach development started after 1983 is to be eliminated. This is all to the good, but we need the elimination now, not 1983.

Little Compton has been fortunate that its local barrier beaches have not been developed. This is due in part to the town's low tax rate and the continuancy of ownership of these beaches. But if the inflation rate and the cost of living continue to climb, there will be a tremendous temptation to develop this land to its highest and best use. In Little Compton, this highest and best use would be residential development.

Senate bill 1018, introduced by Senator Chafee, is a good bill. It is a step in the right direction to help all of us protect the valuable natural resources that exist in the system units of barrier beaches. The best way to protect these resources is to make it economically unfeasible to destroy them by development. The Federal Government can do this by eliminating Federal subsidies. Section 6 of S. 1018 deals with exceptions. These exceptions are logical and acceptable. Section 8, which recognizes State or local law, is an excellent provision.

Senator Chafee has mentioned that his bill will save millions of dollars per year. I still have one concern. Senate bill 1018 appropriates $1 million per year for 5 years. I would assume that it would create more jobs within the Department of the Interior. I would hate to see more bureaucracy established that might never end. I would hope that at the end of 5 years there would be a favorable report forthcoming on the elimination of Federal subsidies and that Congress would take a long, hard look at any further appropriations, whether it be for subsidies or studies.

I was hoping that this statement would have the unanimous endorsement of the town council. One member said she could not endorse it because she did not know enough about the subject. She was not against the bill, but she just didn't know enough about it.

Senator CHAFEE. We will take a 4-to-1 endorsement. [Laughter.]

Ms. CABOT. Thank you, Senator.

Senator CHAFEE. Thank you very much.

Mr. Hartley?

STATEMENT OF JOHN HARTLEY

Mr. HARTLEY. I want to thank you, Senator, for the opportunity to come here and represent the people of Charlestown in this effort to protect our barrier beaches.

Charlestown is a small rural coastal community of about 4,800 people in the last census, year-round population, increasing to about 10,000 in the summertime. Our coastline on the Atlantic Ocean consists of about 6 miles of fragile barrier dunes, or beaches, backed by coastal salt ponds. Breachways connect these ponds with the ocean. Some of this barrier land is heavily developed, but a large portion of it remains undeveloped.

Experience in our town has shown that the barrier land is an extremely risky place on which to build a home. Hundreds of homes in these areas were completely washed away during the hurricanes of 1938 and 1954. The impact of winds and water damage against these buildings extended as high as 12 to 15 feet above ground level. Many building lots completely disappeared and others remained only as fragile shifting sand dunes.

Present owners build houses on piles driven 8 feet into the sand and rising 12 to 18 feet above ground level. Sand under these buildings shifts with waves and wind action. It is not uncommon to see in the spring exposed septic tanks on the beach. Probably the only good drinking water comes in bottles at these locations.

Before the Federal Government started subsidized flood insurance, I understand it was all but impossible to obtain a mortgage for construction on barrier land. Most of the construction we have seen on the barrier in recent years in our opinion is directly the result of the availability of subsidized insurance.

The overwhelming majority of people in Charlestown want to protect the remaining undeveloped barrier land and coastal ponds. We feel these are priceless assets that not only are beautiful to look at but also are essential habitat for fish, wildlife, and shellfish.

For these reasons the Charlestown Town Council at a special meeting on August 3, 1981, endorsed bills S. 1018 and H.R. 3252 and strongly opposes Federal Government encouragement of development of coastal barrier land.

The council further urges that all Federal subsidies, insurance, or other encouragement for construction on this land be discontinued and that the cutoff date be retroactive to the filing date of the bills, if possible. Otherwise we fear an acceleration of construction plans and application before the cutoff date.

The town of Charlestown is now engaged in a 3-year aerial mapping program which we feel will be very helpful in identifying the undeveloped portions of the barrier areas. Our planning and conservation commissions also are now working in cooperation with the State planning division to complete a new comprehensive community plan. I am hoping that this plan will include provisions that also help to protect the barrier areas.

We would be happy to cooperate with Federal agencies in developing these plans to help attain the objectives envisioned herein.

On that retroactive matter of the termination of the insurance, we in Charlestown are very much aware of what happened when we put our new zoning plan into effect in 1974. There was no moratorium called for at the time and there was a tremendous rush of planning, of dividing the open land, farmland, and to this day we have not used up all those lots that were plotted at that time. Most of them are nonconforming as far as the zoning law is concerned, small lots. We still have a great many of them, hundreds of them. There was a tremendous rush. I think that is what could happen here.

Also, another question in our minds which comes about from local experience is recently a private party offered the town 3 acres of land on a barrier beach along toward the undeveloped end, down toward the breachway where the State has its camping area, 3 acres which formerly was assessed for about $60,000. I daresay if those were buildable lots, they would be worth today perhaps $160,000 or more.

Well, these 3 acres were offered to the town for $5,000. I have gone down and looked at them. There is nothing but a little strip of sand dune in that area. I don't know what the town would do with it. We haven't decided what we will do with this offer. But I have looked at the maps of the barriers and the map of a barrier dune is all cut up just as you would slice cheese, all little lots, many of them owned by private parties. So I think somewhere along the line we may have to consider what is going to happen to these lots that are down there, these private lots.

Senator **CHAFEE**. Thank you very much, Mr. Hartley.

Miss Prager from South Kingstown.

STATEMENT OF ANNA PRAGER

Ms. **PRAGER**. The town of South Kingstown would like to express enthusiastic support for bill 1018, the Coastal Barrier Resources Act.

The town of South Kingstown has long recognized the need——

Senator **CHAFEE**. When you say the town of South Kingstown, has there been a council vote of any type?

Ms. **PRAGER**. Yes.

Senator **CHAFEE**. The council did vote to support this legislation?

Ms. **PRAGER**. Right. I believe that there is correspondence forthcoming to the Senator's office to that effect.

Senator **CHAFEE**. Fine. Thank you.

Ms. **PRAGER**. The town of South Kingstown has long recognized the need to protect its barrier beaches through sound land-use management. This realization is the result of a long history of storm activity and erosion along our oceanfront.

Improper use of these flood-prone lands, such as the barrier beaches, has resulted in losses of human life, property, and severe social disruption.

South Kingstown has zoned the most sensitive areas of its coastline as a flood danger zoning district and has limited the permitted uses to exclude activities which involve human habitation on a 24-hour-per-day basis. This local regulation is currently being challenged. Dave referred to some of the particulars.

In reviewing the history of land use on one of our barrier beaches, Green Hill Beach, it is apparent that Federal involvement through the national flood insurance program has played an important role. Green Hill Beach is 7,260 feet of fragile shoreline, 99.3 acres in area. After the 1938 hurricane, only a few houses were rebuilt, and these were swept away in 1954. Land values at that point on the beach were very low. One parcel of legal zoning lot size on Green Hill Beach was assessed for $100 in 1966. In fact, several lots were forfeited at that time for nonpayment of taxes because their owners felt that the lots were worthless.

In 1963, the national flood insurance program, administered by the Department of Housing and Urban Development, came into being. The program allows property owners in flood-prone areas to obtain flood insurance at subsidized rates. South Kingstown began its participation in this program in 1972. It was subsequent to this that requests for building permits on the barrier beaches began to be received by our building inspector's office. Previously, although no local zoning prohibitions had been in effect since 1966, no applications for permits had been received. By September 1973, a year after our participation in the flood insurance program, 31 permits for construction of residences had been issued on Green Hill Beach. Land values began to increase dramatically. The same lot which had been assessed for $100 in 1966 was reassessed for $1,600, and by 1973 it was worth $15,000.

The national flood insurance program precluded a market control of development on these barrier beaches. The property damages of past hurricanes were lessons well learned by the private market. No insurance company would insure a house which had such a high risk of property damage. Consequently, no banks would offer financial assistance.

The national flood insurance program changed that situation and made development on barrier beaches possible. The program decreased the financial risk to property owners and, in effect, acts as a counterforce to effective coastal zone management.

The town of South Kingstown unanimously supports the legislation that you, Senator Chafee, are putting forth and hopes that you would help us in our efforts to protect our barrier beaches.

Senator **Chafee**. Thank you very much, Miss Prager. I appreciate that. I know that South Kingstown has taken the lead under the leadership of the town council and others in the town interested in this. South Kingstown has put money up for lawsuits and has valiantly fought against this, trying to use the Coastal Zone Management Act. You have met with plenty of frustrations. As you point out, the chief culprit in this whole business has been Federal flood insurance.

This legislation does provide, Mr. Hartley, for elimination of the Federal flood insurance immediately. We will continue with that in this legislation, even though in the reconciliation bill they managed to come to a compromise where it would be eliminated October 1, 1983. Whether we can reduce that time I don't know.

I share your concern, Mr. Hartley, that this is liable to start a stampede, with everybody trying to get under the wire. I have been horrified by the high interest rates, but maybe the high interest rates will slow people down, or the mortgage rates will slow people down. But I just as soon have the mortgage rates come down. Don't let anybody misunderstand me here.

Now Mr. Griscom from Westerly.

STATEMENT OF TOM GRISCOM

Mr. **Griscom**. Thank you, Senator.

Westerly is honored to be invited to testify at this hearing. I have been asked by our town manager, Glenn Miller, to represent the town's position.

We are presenting a consensus of our town's position as well as the major owners of the undeveloped barrier beaches of the town; namely, the Nope's Island Association and the Weekapaug Fire District for the Weekapaug barrier beach and the Watch Hill Fire District for Maschaug and Napatree barrier beaches.

This consensus strongly supports your bill.

Senator **Chafee**. Did the town council vote to support, Mr. Griscom?

Mr. **Griscom**. Sir, what I am presenting is the town manager's position paper. To my knowledge, they have not voted on this.

I also have here, which you do not have, the Watch Hill Fire District, the Weekapaug Fire District, and the Nope's Island Association letters.

Senator **Chafee**. I notice we have a copy of the August 12 letter that Mr. Miller, the town manager, wrote to Mr. Hester who is the Acting Deputy Director of the Fish and Wildlife Service.

Senator **Chafee**. He says, "Dear Mr. Hester, In response to your correspondence of July 7, 1981, concerning Senator Chafee's beach legislation, I would like to state that the town of Westerly supports and endorses Senate bill S. 1018."

Well, that must be more than his own view. There must have been a vote in the town council.

Mr. **Griscom**. Sir, I don't know.

Senator **Chafee**. I can't imagine the town manager going out on the edge of a limb saying the town supports it.

Mr. **Griscom**. I can find out about that and get back to you.

Senator **Chafee**. I would be willing to wager Mr. Miller would be careful to get the position of the council before he would write a letter like that.

Mr. **Griscom**. I do know we invited the testimony from the fire districts in the Nope's Island Association, which are here. They are the major property holders.

Senator **Chafee**. Fine. The Watch Hill Fire District, did you say?

Mr. **Griscom**. Yes, sir. And the Weekapaug and the Nope's Island Association, which owns part of the beach.

Senator **Chafee**. We will make that a part of the record.

[The letters follow:]

Town of Westerly
Rhode Island

Office of the Town Manager

August 12, 1981

F. Eugene Hester,
Acting Deputy Director
U.S. Department of the Interior
Fish & Wildlife Service
Washington, D.C. 20240

Dear Mr. Hester,

In response to your correspondence of July 7, 1981, concerning Senator Chafee's beach legislation, I would like to state that the Town of Westerly supports and endorses Senate Bill S.1018.

As a coastal community Westerly's economy is heavily dependent upon the tourist industry which thrives along our coast. The protection of this economic base is indirectly tied to the protection of these resources to which tourists and townspeople are drawn--the barrier beaches. The development of these sensitive areas in recent years is, in part, due to the National Flood Insurance program. As these resources dwindle their aesthetic and economic values increase. Only through this type of legislation could we protect a significant portion of this resource thereby preserving it for future generations; ensuring that the important role the barrier beach and salt pond ecosystems play in providing habitat for many variations of fish and wildlife can continue.

As requested, you will find enclosed the results of an initial survey of areas in Westerly being considered for inclusion in the legislation. There are lists of property owners by plat map and lot listed and exhibited on the enclosed map. The results of the survey show that these areas fit the criteria of "undeveloped" barrier beach. In terms of "unprotected," none of the subject land is owned by the Town of Westerly, State of Rhode Island, or any department or agency of the federal government. Interestingly enough, a large majority of the holdings, especially in the areas of Napatree Point and Weekapaug, are under the ownership of quasi public fire districts. It is assumed that these districts are holding these lands for recreational use by fire district taxpayers. It is the Town's sentiment that since not all lands in these areas are held by fire districts and that these fire districts have no particular restrictions on the future development of these lands, they be considered "unprotected" and, therefore, eligible for inclusion under this legislation.

I hope that these comments and the enclosed information provide you with sufficient information to act positively on the inclusions of these three areas, as presented on the maps submitted to the Town of Westerly, into S. 1018. If you require additional information, please feel free to call me at 401/596-0341. In addition, we will be represented at the August 13th regional hearing on this legislation and my representative will present the Town's position and be available to comment and answer any questions you may have.

In closing, I would like to thank you for your efforts in soliciting the Town's feelings on this legislation which is of particular interest and concern to us all.

Very truly yours,

Glenn J. Miller

Glenn J. Miller
Town Manager

GJM/bgl
Enclosures
Ccs: Senator John H. Chafee,
David Strouss, Coalition of Coastal Communities
Thomas Wagner, Community Development Director

Watch Hill Fire District
Watch Hill, R. I.

August 11, 1981

Glenn J. Miller,
Town Manager
Town of Westerly
Westerly, RI 02891

Dear Mr. Miller:

In response to your recent inquiry concerning the position of the Watch Hill Fire District relative to the pending Federal Coastal Barrier Resources Act, the district is in favor of the act. Representatives of the district met with various officials of the Coastal Resources Management Council and representatives from Senator Chafee's office this past spring, and reviewed the act as it relates to Napatree Point.

Watch Hill Fire District has notified Senator Chafee's office that it is in favor of the legislation.

Very truly yours,

Clerk

cc James G. Reardon,
Moderator
Watch Hill Fire District

EDWARDS & ANGELL
COUNSELLORS AT LAW
ONE HOSPITAL TRUST PLAZA
PROVIDENCE, RHODE ISLAND 02903
(401) 274-9200

August 12, 1981

Mr. Thomas Wagner
Community Development Director
Town Hall
Town of Westerly, RI 02891

Re - Federal "Coastal Barrier Resources Act"
Senate Bill S-1018 - House Bill 3252

Dear Tom:

As counsel for Weekapaug Fire District and Nope's Island Association, Inc. I am pleased to enclosed copies of letters sent by both of these organizations to Mr. F. Eugene Hester, Acting Deputy Director of the United States Fish and Wildlife Service. You are authorized to deliver these at the hearing tomorrow on this legislation along with a copy of this letter.

I would appreciate receiving in due course a copy of the Town letter on this legislation.

Thanks for your cooperation.

Sincerely yours,

Cal Groton

Calvert C. Groton

Enclosures

WEEKAPAUG FIRE DISTRICT
Taylor Lane
WEEKAPAUG, RHODE ISLAND
02891

August 10, 1981

The Director
Fish and Wildlife Service
Washington, D.C. 20240

Attention: F. Eugene Hester,
Acting Deputy Director

Re: Conservation of Coastal Barriers
S. 1018 and H.R. 3252

Dear Mr. Hester:

I acknowledge receiving a copy of your July 7 letter to the Town Council of Westerly, Rhode Island. In response to your solicitation of views and recommendations concerning the coastal barrier system and with particular reference to System Unit 032 Quonochontaug, Rhode Island which encompasses Weekapaug Beach and Quonochontaug Beach, I wish to affirm that the Weekapaug - Quonochontaug Beach is undeveloped and has been since the hurricane of 1938.

Sometime after the 1938 hurricane, the Weekapaug Fire District acquired a major portion of the beach from the former owners and since that time has maintained it in an undeveloped state. The Weekapaug Fire District in conjunction with other owners have been instrumental in maintaining the entire beach area in a natural state consistent with moderate recreational use. We believe that the Weekapaug - Quonochontaug Beach would be considered "unprotected" under Section 4(a)(3) of the bills.

Very truly yours,

William E. Glynn

William E. Glynn

NOPE'S ISLAND ASSOCIATION, INC.
c/o Robert D. Darling, Jr., President
Noyes Neck Road
Weekapaug
Westerly, RI 02891

August 12 , 1981

Mr. F. Eugene Hester
Acting Deputy Director
United States Department
of the Interior
Fish and Wildlife Service
Washington, D.C., 20240

Dear Mr. Hester:

This will refer to the letter dated July 7, 1981 sent by you to the Town Council of Westerly, Rhode Island. This letter relates to pending legislation in the U. S. Senate and in the U. S. House of Representatives entitled "Coastal Barrier Resources Act" (S.1018 and H.R.3252). Included in the letter is a map of the Weekapaug-Quonochontaug Beach area lying to the south of Quonochontaug Pond, which map designates this beach and coastal area as being a private conservation area within the scope of the proposed Act. We understand this letter was also sent to the Town Council of the neighboring Town of Charlestown.

Nope's Island Associates, Inc., which was organized in 1952 for the purpose of "acquiring, holding and maintaining real estate for the protection of the natural resources of coastal areas", owns the easterly portion of the area designated on the above referred to map and has maintained and preserved it for many years as a private conservation area. We wish to go on record as supporting the proposed legislation as well as the inclusion of our property within the scope of the proposed Coastal Barrier Resources Act.

Very truly yours,

/s/Robert E. Darling, Jr.

Robert E. Darling, Jr.
President

cc: Hon. John S. Chafee
Mr. Ronald J. Micelli
President, Town Council
of Town of Westerly
Mr. John Hartley, President
Town Council of Town of
Charlestown
Mr. Ted Nelson, Chairman
Quonochontaug Beach
Conservation Commission

Mr. John A. Lyons
Executive Director
Rhode Island Coastal
Resources Management Council
William E. Glynn, Esq.
Moderator
Weekapaug Fire District
Calvert C. Groton, Esq.

Senator **Chafee**. Did you have a vote or are you reporting?

Mr. **Griscom**. I am reporting I have this backup testimony to be included, what I have submitted, with the town manager's statement.

Senator **Chafee**. All right. Fine.

Mr. **Griscom**. I would like to bring up two additional points, that Westerly has 5 miles of undeveloped barrier beach, and to our knowledge, that is the greatest extent of any town in the State. The acre extent of the property related with the undeveloped barrier beaches is 340 acres. That is half a square mile, approximately. So that is less than 2 percent of our 30-square-mile town. So our resource is very rare.

However, we have about 2 percent of the population of the State, 18,000. So if you multiplied our 5 miles by 50, that would be 250 miles. So if the rest of the State had as generous a proportion of the undeveloped barriers as we did, we would have a lot of undeveloped barriers. I am saying the resource is rare, but Westerly is blessed with a large share of it.

I would also like to say that there is on the Maschaug barrier right now a 3.8-acre lot for $250,000 for sale, say $70,000 an acre. I am aware of land in Avalon, N.J. on the inland waterway that is going for $250,000 an acre—or a lot, I should say. So one has to be quite wealthy to buy undeveloped barrier beach land. Any federally subsidized program that aids the purchase of this land seems to me an Alice in Wonderland situation where the citizens of the country are subsidizing the wealthy. We welcome our return through the looking glass to reality and heartily support your bill.

Senator **Chafee**. Thank you very much. I must say I agree with you. Why somebody from Central Falls who is doing all they can to keep their head above water should be paying Federal taxes to help somebody get Federal flood insurance makes no sense whatsoever. I just hope that we can get this legislation through.

As I say, even though the reconciliation measure provided for the cessation of the flood insurance starting October 1, 1983, my bill provides for the elimination of it immediately. We are going to press for that. It doesn't necessarily mean just because they didn't prevail in the reconciliation for the immediate cessation that we wouldn't be able to prevail. This is a different ball game.

I think the testimony of each of you today is extremely helpful. No one can say we haven't got the support of the coastal communities affected. I am grateful for your coming.

I might say I have been a longtime activist in this area. When I was Governor, we took over East Beach, Mr. Hartley, in Charlestown—I think it was about 3 miles—for a State beach. We had some trouble because there were 18 houses on that beach. But we were vastly helped by the fact 17 of them were owned by people from Connecticut.

In any event, we purchased all of those homes and moved them. So there is the beach.

Thank you very much for coming.

Ms. **Cabot**. Thank you.

Mr. **Hartley**. I just want to say, Senator, we are pleased and proud that our own Senator Chafee has taken the lead in this very important endeavor.

Senator **Chafee**. Feel free to put that in the record.

The next panel is Mr. Richard Delaney, chairman, New England/New York coastal zone task force, and Mr. Stan Humphries, Association of Flood Plain Managers. If you gentlemen would come up, please. Then we will have a brief break.

On the wall is a composite aerial photograph that shows the barrier beaches along the whole coast of Rhode Island. I can't believe it is the whole coast of Rhode Island. It must be from Galilee to Watch Hill.

Mr. Delaney, do you have a statement?

STATEMENTS OF RICHARD DELANEY, CHAIRMAN, NEW ENGLAND/NEW YORK COASTAL ZONE TASK FORCE, COASTAL ZONE MANAGEMENT PROGRAM, AND STAN HUMPHRIES, ASSOCIATION OF FLOOD PLAIN MANAGERS

Mr. **Delaney**. Yes, Senator. I am Richard Delaney, director of the Massachusetts CZM program and, as part of that, I am chairman of the New England/New York coastal zone task force. The Coastal Zone Task Force, whose members are the directors of the coastal zone management programs of Connecticut, Massachusetts, Maine, New Hampshire, New York, and Rhode Island, was established in 1974 to promote coordination between the region's coastal programs. We appreciate this opportunity to comment on S. 1018. Following are some general observations and comments on the need to protect those remaining undeveloped coastal barriers, then some specific suggestions for your consideration to perhaps strengthen S. 1018.

The major point we want to make is that legislation such as S. 1018 that will protect undeveloped coastal barriers should be passed as soon as possible. The time is ripe for a measure such as this to be adopted by the 97th Congress.

Senator **Chafee**. I just want to make one comment. I think one of the things that came out of the testimony of the previous panel is how extraordinarily lucky we are that we are moving now. You heard the testimony of Mr. Griscom from Westerly that a vast quantity of their beaches are still undeveloped. In South Kingstown there are areas still undeveloped. For once we are not coming in after the horse has escaped from the barn. Even though many of the beaches have been developed, if we could move quickly, we can really do something constructive by saving these.

I would be interested in your comments from the areas you represent. You don't have New Jersey, but you have all of New England plus New York. I would be interested, when you say the time is ripe, whether there is as much left in the other areas as there is in Rhode Island.

Mr. **Delaney**. In the States that are represented by the coastal zone task force, by the inventory, there are 81.8 miles of beach that have been designated in the inventory list. Massachusetts is the State with the most, almost 40 miles, in that category.

Senator **Chafee**. In the undeveloped category?

Mr. **Delaney**. Yes; that have been identified on the preliminary Department of the Interior list. So yes, I think it is significant.

The coastal zone management program directors who deal with those particular portions of beach have met regularly as a task force and discussed just this type of possible legislation.

Senator **Chafee**. For the benefit of everybody in the audience, the Secretary of the Interior has drawn these maps and, of course, they are currently being revised. But these maps are available for people to see. I suppose all of the coastal zone managers have seen them.

Mr. **Delaney**. Yes, sir.

Senator **Chafee**. They have been sent out. So in the State of Rhode Island, Mr. Mane must have what is designated in Rhode Island.

Mr. **Delaney**. I don't happen to have the list.

Senator **Chafee**. Mr. Lyons—excuse me—is testifying, so he would have that.

All right. Why don't you go ahead.

Mr. **Delaney**. Just to follow up on that point, Senator, I know in our State, Governor King received the list and has relayed it to our office for review and comments for additions and clarifications. So that process is underway right now.

I guess also to reiterate, that the reason for the timing being ripe now is not only environmental but economic. I think with the discussion of this year's fiscal year 1982 Budget Act and the mandate as expressed in that, this type of action certainly complements and coincides with economics.

I would also like to focus on the fact that Congress has already expressed its endorsement of the need to protect undeveloped coastal barriers. That happened on two different occasions.

First, in October of this past year, the following language was added to the policy section of the Coastal Zone Management Act:

> (A) . . . the protection of natural resources, including wetlands, floodplains, estuaries, beaches, dunes, barrier islands, coral reefs, and fish and wildlife and their habitat within the coastal zone. . . .

A second amendment to the policy section of that act states that:

> (B) . . . the management of coastal development to minimize the loss of life and property caused by improper development in flood-prone, storm surge, geological hazard and erosion prone areas and in areas of subsidence and salt water intrusion and by the destruction of natural protective features such as beaches, dunes, wetlands and barrier islands . . . .

Second—I guess there is not too much to reiterate further—the Reconciliation Budget Act of 1981 prohibits the issuance of flood insurance policies on undeveloped coastal barriers after 1983.

I think those two statements both are consistent with and complement the objectives of your proposed legislation.

We applaud Congress for the passage of that prohibition of flood insurance. However, we again—and we reiterate—believe that the flood insurance prohibition should become effective at the same time as the other provisions, such as provisions in S. 1018. Otherwise, it can be expected that the current rate of 6,000 acres of development per year on coastal barriers will be accelerated to beat the 1983 cutoff date.

In addition, the problem of stemming the tide of federally subsidized coastal barrier development must be addressed more comprehensively as in S. 1018, rather than attempting to isolate it in individual programs.

We would also like to dispute the claim that a measure such as S. 1018 would prohibit the privately financed development of certain barriers. If coastal barriers were safe to develop, then one would expect developers to show little, if any, concern over not being eligible for federally subsidized programs such as flood insurance. If the various Federal programs alter the free market system to make normally unfavorable conditions economically profitable, then we would argue that it is proper and necessary for Senate bill S. 1018 to correct this situation.

At this point I would also like to pose some suggestions for your consideration as additions to your bill.

First, while S. 1018 prohibits the use of Federal funds for the construction of bridges and causeways to any unit in the coastal barrier system, it does not provide the Coast Guard with the authority to outright deny permits for privately funded bridges. This may be the most direct and cost effective method to control future Federal expenditures on those coastal barriers that are true islands.

Accordingly, a section should be added to S. 1018 that would give the Coast Guard the legal authority to deny bridge and causeway permits consistent with the intent of coastal barrier protection rather than with navigational concerns only. And public safety may be something to consider.

Senator **Chafee**. Is that truly a worrisome matter? Are there many privately funded bridges?

Mr. **Delaney**. I think what we have in some of our discussions anticipated is that after the passage of a bill such as yours which curtails the public expenditures, the only last real threat to major developed or undeveloped barrier beaches would come from a highly capitalized operation. I mean small individual homeowners obviously cannot do it, but the threats of some of the coastal barriers are clearly going to come from major capital operations, which would be privately funded.

We think maybe the way to also address that issue, if not here, but also as part of this, would be to cover the Coast Guard to deal with that up front.

Senator **Chafee**. I think we would be getting into trouble doing that. The whole thrust we have made here is that we are prohibiting the Federal Government from subsidizing this development. We are saying look, if you, "Mr. Individual," want to go ahead and spend your money, that is your business. We are not zoning these places. We are not prohibiting construction. All we are saying is anything you want to do, you have to pay for it yourself. We, the taxpayers of the Nation, aren't going to subsidize you.

If we get into the business of saying but the Coast Guard will deny a permit for the construction of a private bridge, assuming the bridge meets all the other Coast Guard requirements of not interfering with navigation and so forth, that is quite a step further. We would run into a hornet's nest on that one, I think, because that goes against the thesis that I set forth originally.

Mr. **Delaney**. I understand, and it is made only as a suggestion. It is a possibility. I think it is probably directed or stems more from not the economic basis that I think you are basing your legislation on but the management ideas that some of our coastal zone management policies have in general.

Senator **Chafee**. I am not opposing the idea. Frankly, I am rather sympathetic toward it. But I am trying to get the legislation passed. It goes contrary to the thesis I have set forth.

Mr. **Delaney**. I understand. I just posed it as a possibility.

The second option we may offer for your consideration is the term financial assistance should be explicitly defined to include the casualty loss deduction of the Internal Revenue Code for any new construction on undeveloped coastal barriers. Without the closing of the casualty loss loophole, it is possible that some forms of development such as second home condominiums, et cetera, will remain an attractive investment on the coastal barriers.

Again, I realize we may be just posing ideas that are a little beyond the scope.

Senator **Chafee**. Every idea is helpful. I am not discouraging ideas. Why don't we take the next one.

Mr. **Delaney**. That, of course, as just a final note of explanation on that, is that that type of a writeoff through the Federal Internal Revenue Code in fact could be either a federal direct assistance or subsidy of development.

Senator **Chafee**. You could carry this quite a ways. You couldn't deduct the interest on a mortgage somebody got or a loan somebody got.

But I don't want to throw cold water on your suggestion. The next one I think is a very good one.

Mr. **Delaney**. The next one is further clarification on the language in section 6(4)(VI), which reads, "The maintenance, replacement, reconstruction, or repair, but not expansion, of publicly owned or publicly operated roads, structures or facilities." We would just suggest for clarification that federally owned or federally operated roads may be in line with the Federal initiative you are suggesting.

Another possibility we would suggest, as noted in the findings section of Senate bill 1018, a coordinated effort among local, State, and Federal agencies is necessary to address the critical problem of development on the coastal barrier resources. Consequently, we recommend that section 8, priority of State Law, be clarified to recognize explicitly that all Federal permits, licenses, and assistance that may be granted in the coastal barrier system will be subject to the Federal consistency provision of the Coastal Zone Management Act. This will provide a means of insuring that S. 1018 complements and reinforces the individual States' coastal zone management programs.

I think that is maybe implied and understood. We just suggest strengthening that language there.

Further interagency coordination can be achieved in section 10(2)(b). We commend the provision that directs the Secretary of the Department of the Interior to consult with the Governors of affected States and the public and would recommend that the Secretary also be directed to consult with the Administrator of the National Oceanic and Atmospheric Administration in the Department of Commerce, the Administrator of the Federal Emergency Management Agency, and other relevant Federal agencies. These agencies have a vital interest in and knowledge of coastal barrier resources.

Last, for your consideration, we would suggest in section 6, exceptions, we recommend that the committee consider expanding the provisions to include nonstructural hazard mitigation and erosion control measures such as dune revegetation. Such a provision would allow for action in rare circumstances when replanting a dune would enhance its natural ability to provide a storm buffer for critical marshland.

In closing, it is our view that S. 1018, particularly if the changes we suggest are adopted, is a vital piece of legislation that should be passed as soon as possible. S. 1018 makes sense both from the economic and environmental perspectives. In short, it represents the best in sound management of a valuable resource. Again, thank you for this opportunity to express the collective view of the CZM programs of New England and New York. I would be happy to answer any questions you might have regarding our statement.

Senator CHAFEE. Thank you, Mr. Delaney. I do want to ask you some questions. The problem we will have on the floor, is representatives of those States, principally South Carolina, who say this isn't necessary. We have a Coastal Zone Management Act, and we can do everything under that. Don't worry. You stay out.

What is your answer to that? I have some answers, but I would like some help from you on how this intertwines with the Coastal Zone Management Act.

Mr. DELANEY. As you know, Senator, the authority that the Coastal Zone Management Act has, its major authority, is the provision for Federal consistency, under which Federal licenses, permits, or Federal funding for projects within the coastal zone are reviewed by the State's coastal zone management program to assure that those projects or those licenses and permits are consistent with the State policies within that State. It is a good vehicle for addressing this issue.

It also, however, depends on the individual State program and its particular policies. Therefore, there is some variation nationwide in the degree to which that Federal consistency provision is applied.

You mentioned South Carolina. I assume, and from my conversations with representatives from that State, they approach perhaps some of this issue and the application of Federal consistency a little bit differently than, say, my State of Massachusetts or some other New England States. I think your legislation would help provide some uniformity for it.

I would encourage you to add and emphasize the responsibility of coastal zone management programs in each State to complement what you are trying to do with your legislation.

Senator CHAFEE. I think you are right there. I think your point that these agencies have a vital interest in, and knowledge of, coastal barrier resources is absolutely true. I am sure no one knows more about the coastal zone and the barrier islands than Mr. Lyons, for example, who is head of our Coastal Zone Management Council. But what I am looking for is some ammunition to counteract the suggestion of dropping this whole act and just letting the coastal zone managements in the local States handle it.

For instance, in a State that didn't have this vigorous an act, we are completely at the mercy of what the State chooses to do; isn't that true?

Mr. **Delaney**. Pretty much so, yes, sir.

Senator **Chafee**. If we didn't have this act.

Mr. **Delaney**. Yes.

Senator **Chafee**. Even with this act and the efforts of Mr. Lyons and the coastal resources management and the Federal flood insurance you can't end the Federal construction.

Mr. **Delaney**. No. Perhaps the other drawback to the Federal consistency is its timing. Often Federal funds are committed to a project on undeveloped barrier beaches. Often plans are made, designs are made, and the process gets pretty far down the track before the Federal consistency review actually can come into place. Your initiative tries to nip this in the bud before the project is well underway.

I think maybe one of the differences may be a matter of timing, simply. What is more efficient and expeditious: To stop a project by stopping the permit or insurance up front or to try to review it, as we have to do, after it is almost in its finalized form.

Senator **Chafee**. What can you do in Massachusetts to prevent construction on a barrier beach somewhere?

Mr. **Delaney**. I think we have two or three tools. I know John Bewick will be talking about what Governor King has issued. That sets a policy of discouraging State funds from encouraging development on barrier beaches. We have a set of wetlands regulations that clearly define resource areas in terms of salt marshes, barrier beaches, coastal dunes, and some of the most stringent standards within those regulations apply to the coastal barriers.

Senator **Chafee**. Do you have a lot of lawsuits?

Mr. **Delaney**. No, we really don't. You are probably alluding to the issue of taking, and——

Senator **Chafee**. Yes. And they have made valiant efforts in Rhode Island. Whenever South Kingstown turns around, they are slapped with a lawsuit, saying they are taking someone's property without compensation. It has been an extremely frustrating process. Of course, the worst thing of all, as pointed out by the prior witnesses, is the Federal Government comes in and subsidizes this.

Mr. **Delaney**. There are two or three points I should maybe make.

One, in 1978, when the coastal zone management program within Massachusetts helped to write and promulgate those coastal restrictions that I mentioned, the wetlands regulations that I mentioned, the intent was to streamline, clarify and delineate very clearly resource areas and set standards. I think because that was done very well, the sometimes cloudy issue of a taking and whether or not you can or cannot build in an area was pretty much clarified.

We do have a second program within the State which is the coastal wetlands restriction program which even goes perhaps a step further. It is not a regulatory program. It is in fact a restrictions program whereby after a series of steps which identify the coastal resources, primarily salt marshes and coastal beaches, and a public hearing and public notification, a restriction is actually written under the deeds of the landowners of those particular pieces of property. That has won us a few more lawsuits than the regulation program. But nevertheless, I think it is one of the more innovative and far-reaching pieces of legislation that goes on in this country.

Third, I think, speaking of lawsuits and Federal flood insurance, we had an interesting situation when one of our local coastal towns back in 1971 or 1972 actually sued the Federal flood insurance program when it was trying to be implemented in that town because they considered it a taking. Now we I think have almost reversed that. Ironically, someone is proposing taking away the Federal flood insurance and considers that a taking. So the issue of taking is often a mixed one.

Senator **CHAFEE**. Thank you very much, Mr. Delaney.

Mr. Humphries?

Let me ask Mr. Delaney one more question. If you had your choice, would you rather have this act passed or would you rather have amendments to the Coastal Zone Management Act? In other words, do you think we could accomplish all of what we are trying to do by amendments to the Coastal Zone Management Act?

Mr. **DELANEY**. I think at this time this act is the way to go, that your bill is correct. I should maybe reiterate, my suggestions are just meant to be that. The Coastal Zone task force is fully supportive of this initiative. The suggestions I made are just for your consideration.

Senator **CHAFEE**. Fine. Thank you.

Mr. Humphries?

STATEMENT OF STANLEY M. HUMPHRIES

Mr. **HUMPHRIES**. On behalf of the Association of State Flood Plain Managers and the Coastal Issues Committee specifically, we would like to endorse your efforts here as to the Coastal Barrier Resources Act.

The association is composed of representatives from State flood plain management agencies throughout the United States. Our goal is to encourage and insure new and innovative approaches to abating flood damage. We think that there is an important flood plain management and hazardous mitigation element in this legislation.

If you would allow me, I would like to briefly summarize the three major points in our testimony concerning flood hazards themselves, flood insurance, and the infrastructure in the flood plains.

Floods are the most consistently destructive natural hazard, as recently pointed out by a recent study. Coastal flooding differs quite a bit from inland flooding in that there is a migration landward of the hundred-year flood plain boundary through sea level rise and land submergence. There are more complex and unpredictable processes during the flood events themselves.

Higher land values and construction costs present quite an extensive recovery during disaster assistance by the public sector. Barrier beaches are the most vulnerable feature within the coastal zone, and we think that this legislation has properly identified the particular feature within the coastal zone to address the entire barrier beaches, mostly located along the southeast location of the United States, which is entirely important to address beyond even the flood hazard that the front areas are exposed to. The total ecosystem is very sensitive to expansion and development.

Concerning the flood insurance program, we support the major goal of eventual elimination of Federal subsidies. In the spring of this past year, the association passed a resolution which has similar language as this act does to eliminate construction or eliminate insurance for new construction on undeveloped barrier beaches.

Senator CHAFEE. Could you send us a copy of that resolution?

Mr. HUMPHRIES. It is contained in my testimony.

Senator CHAFEE. Thank you.

Mr. HUMPHRIES. A letter was sent to General Geo. Freadi who is now Director of FEMA.

As has been mentioned already, I would just like to add our support. Although the Reconciliation Act has similar language of denial of flood insurance, we think it should be immediately implemented.

Concerning flood plain infrastructures, I think this is a distinct opportunity for a precise limitation on Federal investments in the flood plain. To date, it is the best measure to comply with Executive Order 11988.

In conclusion, I would just like to add that we feel this legislation as it is written now is a good compromise legislation. Environmentalists have often cried out for the entire elimination of the flood insurance program. We in dealing with the flood insurance program feel that immediate elimination of the program could be devastating throughout the country. We think that a slowdown and stepdown elimination of the program is better. Elimination of flood insurance in this one particular area, in resources, is part of that stepdown process.

Senator CHAFEE. I want to make sure I understand. Did you say that the immediate elimination of the Federal flood insurance program would be unwise and you have to step down? Is that what you are saying?

Mr. HUMPHRIES. Yes.

Senator CHAFEE. I thought on page 4 of your testimony you say a 2-year delay has serious ramifications and should be rescinded by passage of the Resources Act, which eliminates it immediately.

Mr. HUMPHRIES. Yes; for one specific area, and that is undeveloped barrier beaches.

Senator CHAFEE. So you are for the immediate elimination of the Federal flood insurance in the barrier beaches?

Mr. HUMPHRIES. Right. The Association feels that there is quite a strength in the national flood insurance program which people not familiar with the program have opposed in the past. We have found that the proper implementation of the flood insurance program in a community requires them to develop better regulations, building standards, flood plains zoning, and eventually that will lead to the local management of the coastal zone through the elimination of insurance.

In addition, the program is able to seek a better actuarial rating and individual risks for coastal property when in the future, if the case presents itself, the private industry can support such insurance efforts.

Just one last remark. The State association feels that through this legislation there will be more responsibility placed on the States for State flood plain management. We accept that challenge.

Senator CHAFEE. Good. Thank you very much, Mr. Humphries, and Mr. Delaney. We appreciate your coming.

Mr. DELANEY. Thank you, Senator.

Senator CHAFEE. We will go right ahead with the next panel: Mr. Bendick, Mr. Bewick, Mr. Lyons, and Mr. Varin. We will reverse the order a little bit. Mr. Bewick has to leave. We will take him immediately. He has an engagement he has to meet.

Mr. Varin, why don't you sit down right here at the end. Mr. Lyons, why don't you sit right where you are. Why don't you lead off, Mr. Bewick.

STATEMENTS OF JOHN BEWICK, SECRETARY, ENVIRONMENTAL AFFAIRS, PRESENTING TESTIMONY FOR HON. EDWARD J. KING, GOVERNOR, COMMONWEALTH OF MASSACHUSETTS; ROBERT BENDICK, ASSISTANT DIRECTOR, RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT; JOHN LYONS, CHAIRMAN, RHODE ISLAND COASTAL RESOURCES MANAGEMENT COUNCIL; AND DANIEL VARIN, CHIEF, STATE PLANNING, RHODE ISLAND STATEWIDE PLANNING PROGRAM

Mr. BEWICK. Senator, I very much appreciate the opportunity to address you and particularly to be allowed to go ahead since I am scheduled to meet the Governor very shortly.

Senator CHAFEE. You better make sure you are there.

Mr. BEWICK. You understand the importance.

Senator CHAFEE. We have copies of your statement here.

Mr. BEWICK. Senator, on behalf of the Governor, who cannot be here, it is our great pleasure to issue strong support and endorsement for the legislation S. 1018, the Coastal Barrier Resources Act, which you have introduced.

I feel that this is a particularly significant and important contribution to solving the coastal areas problems that we have tried to address this past year through the first State executive order on barrier beaches, those issued in August of 1980. In fact, listening to you, your introductory remarks, you sounded very much like Governor King who feels very strongly that public moneys should not be put at risk in high hazard areas. He has a personal commitment to this that is very strong, based on his own family experience of having a shorefront property wiped out in a storm and the property was gone. I mean, there was no State subsidy. They just lost their investment. I think he feels that to put public moneys at risk to support development in areas where it doesn't make sense is not a sound public policy. So we are very strongly in support of your legislation that would eliminate these public subsidies.

In Massachusetts, the executive order that we have issued urges State agencies of the Commonwealth to adopt specific policies to reduce storm damage on the barrier beaches. Of most importance, State funds will not be used to encourage growth and development in hazard-prone beach areas. In Massachusetts, for instance, in the blizzard of 1978, that cost the taxpayers $180 million for coastal damage. Of the 339 homes and businesses destroyed by that one storm, approximately two-thirds were located on barrier beaches.

In Massachusetts, we are beginning to curtail the public subsidies for these precarious developments in these high hazard areas. However, our efforts are thwarted significantly by the Federal Government's continued support of flood insurance and construction of new or substantially improved roads, bridges, sewer treatment and water supply facilities, and erosion control structures on coastal barriers. The Federal Government must recognize the burden it places on the taxpayers of the entire Nation by providing financial subsidies to a small number of citizens who choose to live, of their own free will, on hazard-prone barrier beaches. I believe S. 1018 begins to rectify this serious problem.

Some have argued that eliminating Federal financial assistance for construction on coastal barriers is unfair simply because it is directed at only one of many natural hazard zones. Unlike other hazard-prone areas, barrier beaches are uniquely mobile, dynamic land forms. They are constantly shifting. Composed of unconsolidated sediments, they readily shift, even on a seasonal basis, in response to the ever-present action of wind and waves. In addition, continually rising sea level insures that these low-lying coastal lands will remain subject to serious flooding for the next few centuries at least.

Further, the very changes resulting from development on barrier systems makes the system even more susceptible to erosion and coastal flooding. This direct link between alterations and increased susceptibility to storm damage does not appear to exist in other natural hazard zones. Barrier beaches clearly warrant special and immediate attention if we are to begin to avoid the costly mistakes of the past.

Some critics have also claimed that including all undeveloped coastal barriers within the jurisdiction of S. 1018 is unfair since the degree of stability of each barrier varies. While coastal barriers do vary in size and configuration, it is generally recognized that the risks of storm damage are inherent to all coastal barriers. Indeed, we must not ignore those features which are common to all coastal barriers. These land forms are the mainland's first line of defense against storms. Barriers take the full force and fury of storm action in protecting landward areas against flooding and wave damage. Consequences to the barrier are enormous: Catastrophic shoreline erosion, sudden relocation of river inlets, breaching and leveling of dunes and inundation of the low-lying segments of the barrier causing isolation of the higher, so-called safe areas.

Finally, some have challenged S. 1018 because of its potential impact on future development. That may be the objection you find in South Carolina. They are looking to these barrier areas as potential boons to the local taxpayers.

The bill does not preclude development. Rather, it places the risks and costs associated with investment with the appropriate parties: The individuals desiring to locate in high hazard coastal areas and take the financial risk, and they don't put that burden on the taxpayer. I think that is where the burden exists, on those individuals willing to take the risk.

S. 1018 makes sense both from the economic and environmental perspective. It is the sort of approach we in Massachusetts strongly believe in.

Senator **Chafee**. Of course, you don't have much that you can withdraw in Massachusetts, do you, to discourage the development?

Mr. **Bewick**. We have a significant amount of undeveloped barrier beaches.

Senator **Chafee**. No, but I mean as far as State subsidies. As you mentioned in your statement, you are thwarted by what the Federal Government does.

Mr. **Bewick**. That is right. For instance, we are involved in a very significant controversy on Plum Island about the redevelopment of a new road. That road is going to be partially subsidized by the Federal Government. If that subsidy weren't there, the controversy wouldn't exist. Likewise, for sewage treatment plants, where additional sewage treatment capacity is a boon to development of some of these areas.

If the Federal Government had a policy to eliminate that sort of thing, we would be in effect maintaining the status quo. I think that is what we want to do. We are not attacking those areas already developed. We are not saying that people at their own risk can't develop in these areas. But we don't want to have State or Federal moneys contributing to further development.

In fact, our suggestions—and I realize you have to make that delicate political balancing in terms of what you can get through the Congress and what you can't—we would urge you to push as far as you can go to eliminating all development on barrier beaches; not just those in undeveloped areas, but if you think it is politically wise for the climate in Congress, to extend it as far as you can.

For instance, one of the suggestions we make is could you possibly eliminate flood insurance for new development on existing developed barrier beaches. You may not be able to get the political constituency for that. I don't know. But if you feel that you could, I think it would be a modest extension of your bill that would be helpful.

Senator **Chafee**. I think we have.

Mr. **Bewick**. You have a political problem, I understand that.

Senator **Chafee**. All right.

Mr. **Bewick**. We are appreciative. We realize the context in which your bill comes forward.

There was serious discussion a year ago of trying to buy up these properties. In fact, the executive order that Governor King issued as its first item urges a high priority in State land acquisition to high risk barrier beach areas. We are going to try to tilt State purchases toward these high hazard areas.

A year ago or more people were talking about a Federal money bill to acquire these undeveloped barrier beaches. I realize that the financial situation does not permit that at this moment. I think your bill is the next logical step in promoting the preservation of barrier beaches and discouraging further development. It just doesn't make sense to me to cause the taxpayers to spend money in areas where you know sooner or later you are going to wipe out the area through a major storm. I don't think that is sound public policy. Your bill recognizes that. I think it is a great next step.

Senator **Chafee**. Thank you very much, Mr. Bewick. I know you have an appointment. So if you would like to be excused, that is fine.

Mr. **Bewick**. I appreciate that.

Senator **Chafee**. I would appreciate it if you would convey to Governor King our gratitude for your coming and for his excellent statement.

Mr. **Bewick**. Thank you.

Senator **Chafee**. Mr. Bendick?

STATEMENT OF ROBERT L. BENDICK

Mr. **Bendick**. Thank you, Senator. My name is Robert L. Bendick, Jr., and I am assistant director of the Rhode Island Department of Environmental Management. I am representing the department at this hearing. Our agency has a broad range of responsibilities, many of which relate to the future of barrier beach systems. Our fish and wildlife division protects and develops resources for hunting and commercial and recreational fishing. Our parks and recreation division maintains beaches as recreational areas and several shoreline parks for public use. Our water resources division prevents pollution of coastal waters, and our coastal resources division provides the staff to the coastal resources management council.

These statutory and management responsibilities have made DEM acutely aware of the fragile character of barrier islands, of the biological productivity of the barrier beachsalt marsh/salt pond ecosystem and of the potential of barrier beach areas for recreational use. Our understanding of these resources leads us to support the coastal barrier resources bill with no major changes other than, along with Massachusetts, to encourage application of the bill's provisions to lightly developed beaches insofar as is practical.

Senator **Chafee**. In other words, stretch the definition as much as we can.

Mr. **Bendick**. I think we are concerned as well with there are beaches that are on the margin of the definition, and the subsequent development of beaches such as that, such as parts of Charlestown Beach in Rhode Island, is just going to intensify the problem for no real public benefit.

I am certain that you will receive ample statistical and scientific testimony to support the objectives of the bill. So to illustrate DEM's point of view, I think it would be useful to talk a little bit about one barrier beach location in Rhode Island that we are involved in. This is the Charlestown Beach-Charlestown Pond that you referred to earlier and helped to purchase.

The early settlers and traders in Rhode Island sailed sizable trading ships into Charlestown Pond to trade at a fort on its north shore. The pond was then almost an open bay. The remains of the manmade enterprise are still there, but the beach has changed vastly over the last years. Its size, location, and opening to the sea are very different not only from what they were 300 years ago but in the interim. Only small outboard boats can enter the pond today. With the exception of a few active volcanoes in the West, there are certainly no more changeable and short-lived geologic formations in this country than the barrier islands.

The fragile character of the land separating Charlestown Pond from the sea was illustrated in 1977 when a winter storm, not even a hurricane, washed away the gravel road leading to our recreation area, almost washed away the parking lot there, and destroyed two beach homes. As said before, both East Beach and Charlestown Pond were swept clear of houses in the hurricanes of the 1950's. While East Beach is now mostly publicly owned, Charlestown Beach is not and has been rebuilt with beach houses which will inevitably be lost in future storms.

Senator CHAFEE. On East Beach, isn't there just one house way out on the end?

Mr. BENDICK. There is one house sort of in the middle and it is back behind on the island.

Senator CHAFEE. By Ninigret?

Mr. BENDICK. By Ninigret conservation area.

While the beaches are poor places for houses, they and the pond they shelter are together a remarkable place for wildlife and for recreation. I can remember a few years ago a fall Sunday afternoon—I live far from the ocean—when the football game seemed pretty onesided and my children were yelling and my house on a city street was too confining, I put my canoe on my car and an hour later launched it into the Charlestown Breachway which joins the salt pond to the ocean. There was a thick fog over everything, and I could hear the sound of the surf outside. As I paddled through the marsh there through the passageways, they were migrating, but there were dozens of snow egrets and great blue herons which flew up and disappeared in the mist. I could hear geese coming into the pond. I was fishing for the blues that come into the pond this time of year. There were bluefish and bait fish all over.

Just before I came back, a huge striper, everybody's dream, came up to the canoe. I threw my cast to the striper and he disappeared. As I paddled back, it got dark, and I paddled back to the launching and the small organisms in the water that time of year were glowing in the dark. When I got back to the launch, I shined my flashlight and a whole ball of plankton gathered under it like a dense snowball of little things gathered under it.

The whole experience is something I have remembered very distinctly in the years since as illustrating not only the ability to escape that these places provide for all of us and the ability to go a very short distance and remove yourself from your everyday life, but the phenomenal biological productivity of these areas, it really doesn't take a lot of scientific investigation to see it. All you have to do is go there on a summer evening or afternoon.

It has been estimated that 60 to 90 percent of our commercial and recreational fish stocks use the salt marshes and ponds for breeding and growth. That is completely obvious when you go there and see all of this.

It seems to us at DEM, therefore, that it makes very little sense for the Federal Government to jeopardize these resources by providing major assistance to allow narrow private interests to alter the barrier system, to try to pin the barrier islands in place as platforms for development which will inevitably be lost to the sea or saved only with additional Federal expenditures. Federal dollars are better spent elsewhere. It would be our preference they be spent to buy these beaches. Since that is very difficult to argue these days, we strongly support the proposed legislation because it will help protect our own resources in the barrier beaches, our own investments there as a State department. It will insure the barrier islands will remain as a shield for the mainland storm damages, as refuges for fish and wildlife, and particularly as refuges for all from the hustle, and noise, and frustration of everyday life.

Senator **CHAFEE**. Thank you very much for that very fine statement and tribute to the serenity that comes with the preservation of these areas.

Are you speaking not only on behalf of DEM but on behalf of the State? Can we assume that, or is it just DEM?

Mr. **BENDICK**. I think we can assume that. Sometimes it is hard to tell, but I think so.

Senator **CHAFEE**. That is fine. I think that goes along with the testimony of the prior representatives of the towns, which showed that the incredible growth in the State or the maximum part of the growth is occurring in the towns that border these beaches—South Kingstown, Charlestown.

Mr. **BENDICK**. I think in our land acquisition efforts in the south county area, because we still are trying to buy some lands surrounding the beaches and on Block Island, we see that reflected very clearly by the astounding increase in land prices over the last 2 or 3 years.

Senator **CHAFEE**. Well, the time to do it is now, though. They will get higher. Thank you.

Mr. Lyons?

STATEMENT OF JOHN A. LYONS

Mr. **LYONS**. Senator Chafee, thank you for the invitation to testify.

Senator **CHAFEE**. Mr. Lyons and I served in the State legislature together.

Mr. **LYONS**. We did. It was a pleasure. It was a pleasure, sir.

The Coastal Resources Management Council has had difficulty with the implementation of the Federal flood insurance program since 1971. I can say that every time we had an opportunity, we made it a point to meet with the representatives of the Federal agency and bring out the different concerns and problems that we were experiencing here in Rhode Island. I must say that many of these problems and experiences have already been expressed this morning to you.

The introduction of your bill, S. 1018, and the recent successful effort of Representative Fernand J. St Germain are the first attempts by anyone to remove a major factor contributing to the destruction of barrier beaches. Your bill is consistent with and complements the policies and regulations of Rhode Island's coastal resources management program.

As you know, the Rhode Island Coastal Resources Management Council [CRMC] was created by the general assembly in 1971. One of their major concerns has been and is the protection of Rhode Island's barrier beaches.

The council, from the beginning, recognized the importance of these beaches as wildlife habitat, as recreational areas, and for their storm protection value to the immediate areas. The CRMC also recognized the sensitivity and vulnerability barrier beaches have to any construction on them.

In 1971, the initial decision of the council was to prohibit any further development on all barrier beaches. In making this decision, the council found their ruling challenged on a taking issue—confiscation of property and property rights without proper and due compensation. After the court challenge, the CRMC found it necessary to designate barrier beaches in Rhode Island into two categories—developed and undeveloped barrier beaches.

The present rules and regulations of the council prohibits building or construction of any kind on designated undeveloped barrier beaches and places restrictions and conditions for building on developed barrier beaches which provides a measure of protection to the most vulnerable part of such beaches. In this way, the council is able to accommodate and avoid the taking issue.

A primary reason for the increased pressure to build in these highly hazardous areas is easily tied to the availability of the Federal flood insurance program. The CRMC, in 1972, brought this fact and the unrealistic building requirements of the Federal program to the Federal flood insurance authorities. For years, in spite of the concerted effort on the part of the council, no recognition of their concerns was ever acknowledged by the Federal agency.

The CRMC commends you for initiating a means of alleviating many of the existing problems on the barrier beaches.

We suggest an amendment to your bill that would suspend the subsidization with Federal flood insurance of all building on the V—highly hazardous—zones of the Federal program.

It is well documented in Rhode Island—much of the intense building that has taken place in the so-called V zone was made possible by the availability of Federal flood insurance.

As a result of such building, the CRMC calls to your attention property losses in the V zone, in the next hurricane, could exceed the total property loss from both the 1938 and 1954 hurricanes. The loss of life from such a storm will be tied directly to the accuracy of the forecasts of the National Weather Bureaus and the attention given to such forecasts by the residents living within these highly hazardous areas.

We would also like to suggest the bill be amended to provide an easy format to encourage the donation of land on barrier beaches to the State or Federal Government.

A format and means for purchasing land on barrier beaches with Federal moneys should be incorporated into this legislation.

The Rhode Island Coastal Resources Management Council endorses your bill and would appreciate your consideration of their suggested amendments.

Senator CHAFEE. Thank you very much, Mr. Lyons. Let me just ask you a question. In your designation of undeveloped beaches, which you say places restrictions and conditions for building on developed barrier beaches and prohibits building or construction of any kind on designated, undeveloped barrier beaches, I am just not familiar enough with that. Has that withstood court challenge on the undeveloped beaches?

Mr. LYONS. On the undeveloped barrier beaches, no, we have not been challenged in that particular area. Fortunately, most of the undeveloped barrier beaches are in Federal, State, or other agencies, the Audubon Society, and the like. There are certainly no isolated areas on those undeveloped barrier beaches that are not built upon at this time, but to this day——

Senator CHAFEE. For instance, the beaches that South Kingstown had this problem with, are they developed or undeveloped?

Mr. LYONS. They are considered developed. This was the result of the court hearings we had back in 1972. Our initial step was to declare all barrier beaches as no more building on all barrier beaches. At that particular time, we were challenged in the court and we said that if building hadn't progressed beyond a certain stage, no further building would be allowed on the beach. It was brought into court, challenged. The court said we are involved in the taking issue. We would have to compensate them. It set restrictions. So we went back then and found it necessary to survey the whole State of Rhode Island and come up and name specific areas as undeveloped barrier beaches and other areas as developed barrier beaches. South Kingstown is one of the developed barrier beaches, and so is Charlestown.

Senator CHAFEE. You find the biggest single problem that frustrated you has been the Federal flood insurance?

Mr. LYONS. Yes; primarily its implementation. They haven't been realistic at all in the way it was implemented. First of all, much of the rules and regulations pertain to flooding, but not as an activity that took place in the coastal region. It was more or less uniform. It should have been a certain set of regulations for conditions on the coastal region and a certain set of regulations for the rest of the country as far as rivers, and lakes, and the like. This is where our major problem was. They came in and established flood levels, and houses have been built in flood levels on these developed barrier beaches. There are no provisions that have been made for the wave surge. Everyone here in Rhode Island realizes that the water reached that level at the wave surge or 6 or 8 feet above that level. It is the wave surge that really did the damage. There is no provision made for that at all.

As far as the building code itself in regard to the buildings that are constructed, they were general and they were left in many instances to local interpretation of the local building inspector. Local building inspectors in Rhode Island, in most instances, especially in the barrier beach area, are part-time employees of the town involved. They change. They change for many reasons. You will find out that some things were allowed a few years ago that shouldn't have been allowed. But we are living with them at the present time.

My reason for bringing up the V zone is again a very important point as far as the council's feeling is concerned. We started, as I say, 10 years ago talking about barrier beaches and the problems with barrier beaches and what flood insurance was doing toward allowing the building on barrier beaches. We now feel that barrier beaches is only the first step. It has to be moved back to the V zone, because as recently as this last Tuesday night, the League of Women Voters has produced a film on hurricanes in Rhode Island. It was shown to the council for the first time. In this particular film, there is a very dramatic section, particularly in the middle, which goes into Misquamicut in 1938 after the hurricane, Misquamicut in 1954 after the hurricane, Misquamicut today. My God, when you see what has happened and what is existing today, we are in an awful lot of trouble. There is no question about it.

On my suggestion and the council's suggestion, we are very much aware of the political problems involved, but this is a first step. The second step is repairs so that the V zone can be addressed in some way so flood insurance can be taken out.

Senator CHAFEE. For existing structures?

Mr. LYONS. Existing structures. I think when the existing structure is destroyed, it will be destroyed and——

Senator CHAFEE. Then no more.

Mr. LYONS [continuing]. Then no more, that is it.

Senator CHAFEE. What we do in this bill is we provide that, in the designated zones where Federal flood insurance is denied, that is under this legislation, so-called undeveloped zones, there are occasional houses there. They can keep their flood insurance, but when the house is gone, they can't get it again. What is it, 50-percent? When it is 50 percent destroyed, then no more flood insurance. So they get one bite out of the apple. We felt we couldn't take it away because some people have their mortgages by virtue of having the flood insurance.

Mr. LYONS. That is very true.

Senator CHAFEE. If you yank the flood insurance away, then presumably the mortgage might well be foreclosed.

Mr. LYONS. One of the amendments we suggest here is in some easy format the means for purchasing land in barrier regions. If you had the pleasure of seeing that film, 1938, 1954, and today, there is no question about it, they are going to be gone. If there is some means where the Federal Government would provide for the State or the Federal Government to step in at that particular time and purchase the land, it would be a good thing.

Senator CHAFEE. That is a good point. I think the Fish and Wildlife Service has been very good, from what I heard, in working out various innovative proposals for the return of land by private donors; receiving the land and allowing the people to live on it or take it with some form of easements. Has that been your experience?

Mr. LYONS. Yes. There is a catch-22 situation that develops. It actually developed down in South Kingstown. A gentleman was in the process and made a suggestion he was going to donate a certain amount of beach-front property. This was to encourage what you would like to see happen, especially on the barrier beach areas. He is a very practical individual. He probably is very interested in tax writeoffs. So he goes ahead and has it appraised. If he can get a permit from the town or the State to build on that particular property, he has one set of values that can be written off for tax purposes. But if the town or the State prohibits him from doing it, it is another set of values. So, as a result, give me a permit to build on this beach and I will give you the land. But if you give him the permit to build on the beach, you can't do it because of your local regulations and your State regulations on it. So, as a result, I am not interested in it. Because as Ms. Prager brought out, the valuation of shore-front property, and I can be very specific on it, ran from $700 in 1971 and 1972 when we came into existence and it is up to $17,000, $18,000, $19,000 now.

It is also brought out by the gentleman who has an application before us because he has established in the record the fact if we get turned down here, that there is a $17,000 tag on it.

Senator Chafee. I wonder if he runs to the tax office and tells them it is worth that much.

Mr. Lyons. I think there is a revaluation that has taken place throughout the State at the present time. At least in certain communities it has been done. It is probably going to grab some of these people.

Senator Chafee. Thank you very much, Mr. Lyons. I appreciate your testimony. As always, it is excellent.

Mr. Lyons. Thank you.

Senator Chafee. Mr. Varin, chief of State planning. Glad to see you again, Mr. Varin.

Glad to see you again, Mr. Varin.

STATEMENT OF DANIEL W. VARIN

Mr. Varin. Senator, I am the chief of the Rhode Island statewide planning program. Incidentally, I was first appointed to this position by the then Governor Chafee.

Senator Chafee. Excellent appointment.

Mr. Varin. I have a rather lengthy statement that I am going to briefly summarize and point out some of the highlights because many important comments have already been made.

The proposed Coastal Barrier Resources Act, S. 1018, addresses a broad range of direct and indirect Federal actions which encourage development of the barrier beaches and islands along the Atlantic and gulf coasts. The attractions of the coast for seasonal and year-round housing, recreation, and many other activities are obvious. The fragile character of the barrier dunes that extend along much of this coast has only more recently been fully understood, but it is now equally obvious that these areas are not suitable for intensive development or use. The dangers and costs that are the inevitable consequence of abuse of the coastal barriers have been thoroughly documented. They have certainly been brought out by many of the speakers this morning.

Our inability to deal with this straightforward problem and to apply effective and relatively simple solutions is evident all along the coast. The statewide planning program recently reviewed the development that occurred between 1970 and 1975 along a portion of the Rhode Island shore shown on the strip aerial photograph on the wall to my left. The staff people who undertook this review are here today, Mr. Victor Parmentier and Mr. George Johnson.

The area studied extends from Watch Hill to Jerusalem. We were not quite able to include Galilee because we ran out of wall space. It includes all of the westerly shoreline on Block Island Sound except Napatree Point, all of the Charlestown and South Kingstown shorelines, and a very small section of the Narragansett shoreline. We looked only at the area immediately along the shore, within the defined highhazard area.

Incidentally, the defined highhazard area as defined by the national flood insurance program is shown on the aerial photos as a narrow, yellow line, and a quick glance will show you the inconsistency of this definition between adjoining towns.

We made this survey by comparing aerial photographs taken in 1970 and 1975. Despite the fact that much of this area is unsuitable for construction and despite the fact that long stretches, such as those at Misquamicut, Ninigret, and Matunuck, are dedicated to public or private conservation uses, some 60 structures were built on the coastal barriers during this 5-year period. Many more have been built since 1975. Virtually all are single-family houses for seasonal or year-round occupancy, although there is also an occasional motel or other commercial building.

Given the responsibilities and concerns of the statewide planning program, we are involved to a significant degree in any Federal or federally assisted activity that encourages inappropriate or unsuitable development in Rhode Island.

Senate bill S. 1018 would drastically affect the Federal role in fostering the development of coastal barriers in many of the areas of interest to the statewide planning program. I support this proposed legislation and urge its enactment into law at the earliest possible time since every day brings more undesirable development of the coastal barrier system.

It is particularly important that section 5 of the bill be adopted as proposed, since broadly expressed restrictions are needed to deal with this problem. The exceptions provided for in section 6 appear to include all of those that are essential, and this list should not be lengthened.

As you noted, Senator, a similar bill, H.R. 3252, has been introduced into the House of Representatives by Mr. Evans of Delaware. One provision of your bill is clearly superior to the corresponding language of H.R. 3252, and I urge that your version be adopted. This is section 4(a)(3) of both bills. The Senate wording would not automatically classify publicly and privately owned recreation areas as protected, while the House bill would make this automatic classification. The Senate bill recognizes that recreation areas may be subject to development of concession buildings, parking lots, or other activities which may not be consistent with protection of a coastal barrier system.

Our staff has also made a detailed analysis of the maps of unprotected coastal barriers that were sent by the Department of the Interior on July 7, 1981, to Governor Garrahy and all of the Governors of the coastal States in connection with the two bills currently under consideration. We found that the proposed delineation conforms closely to our own interpretation of the stated criteria and to the classification of beaches by the Coastal Resources Management Council as developed or undeveloped.

However, we did recommend to the Department of the Interior the addition or extension of six areas. These are generally in that category of being marginal as to whether they are developed or undeveloped.

Senator **Chafee**. Could you give us a copy of that reply you sent?

Mr. **Varin**. Yes, I will; with the maps marked to show the additional areas.

Senator **Chafee**. Thank you.

Mr. **Varin**. One of the functions of the statewide planning program is specifically mentioned in S. 1018, and every speaker here today has already mentioned it. The program was designated to coordinate Rhode Island's participation in the national flood insurance program by then Gov. Frank Licht on February 10, 1970. So we are particularly interested in section 5(a)(4) of your bill which would prohibit the sale of flood insurance policies covering new construction or substantial improvement on the coastal barriers.

We appreciate the work of Congressman St Germain in amending the Reconciliation Act. We understand that that provision will go into effect on October 1, 1983. Nevertheless, I encourage inclusion of the same prohibition in the Coastal Barrier Resources Act and urge that it be put into effect even sooner if at all possible. One thing we do not need is an Oklahoma-style land rush on the barrier beaches between now and October 1, 1983.

Of all the Federal programs and actions that encourage or support the development of these coastal areas, the flood insurance program is by far the most important in Rhode Island. In this State, as of April 30, 1981, a total of 6,568 flood insurance policies were in effect in 17 coastal cities and towns. This area includes all of the towns which front on Block Island Sound and Rhode Island Sound. We extended this survey up Narragansett Bay to Warwick on the west shore and Barrington on the east. The total amount of insurance coverage was about $281 million. The vast majority of the flood insurance in these communities is for areas subject to coastal flooding. Very few riverine flood plains are involved. The small community of Charlestown, for example, has 3,066 housing units and 420 of these are covered by flood insurance. The neighboring town of Westerly has 1,073 policies and a total amount of insurance exceeding $40 million.

A recent study sponsored by the New England River Basins Commission, and undertaken by a consultant, Crane Miller, evaluated the extent to which flood insurance was responsible for development of coastal high hazard areas, using the experience of Westerly, Charlestown, and South Kingstown.

One conclusion of this study was that lending institutions had changed their attitudes toward issuing mortgages in coastal flood hazard areas due to the availability of flood insurance. Before flood insurance was available, banks and other potential lenders usually considered the risks in these areas too high. The availability of flood insurance reduced these risks to the point at which mortgages became available and rapid development of coastal barriers began. Consequently, the availability of flood insurance must be considered a major factor encouraging or permitting the unwise development of the coastal barrier systems of this State.

I think it is now clear that this part of the program is economically and actuarily unsound. Claims paid due to coastal flooding and administrative expenses regularly exceed the premiums paid by a ratio of 3 or 4 to 1. The program is only kept solvent by appropriations and by borrowing hundreds of millions of dollars. In a recent year, the fund had to borrow almost $500 million to remain afloat.

Incidentally, this contributes to higher interest rates paid by the Federal Government and insurance.

Increases in premiums were put into effect earlier this month and they will reduce the unwarranted subsidy of unwise development by the Federal taxpayers, but they will neither eliminate nor justify the considerable deficits that still must be expected.

The national flood insurance program is certainly not the only Federal activity that encourages development of coastal barrier islands and beaches. Road and sewer projects, economic development programs, small business loans, and many others are important contributions. Nor am I attempting to claim the Federal Government is the only villain in this piece. The State government has also promoted improper development of these areas through regulations for septic tank installation that did not recognize the problems of coastal flooding, by a total absence of any controls over soil erosion, and especially by inadequate enabling legislation for land management by cities and towns. Local governments have exacerbated the problem by improper zoning, by installation of utility systems that deliberately support development of the coastal barrier systems. Haphazard administration of requirements for coastal zone permits at the State level and of building code provisions at the local level are also important causes of this particular irrational development pattern.

As you have heard, the courts often do not recognize the dangers to persons and damage to property that is the inevitable result of occupying these coastal barriers. Nor do they recognize the burden that falls to the general public as a result.

None of these failures on the part of the rest of us justifies the continuation of Federal actions that promote or that even fail to discourage construction in any areas that are as unsuitable for development as are the coastal barrier islands and beaches and their adjoining wetlands and water bodies.

I would like to support the inclusion of those associated wetlands in the definition of the coastal barrier systems, as your bill does. For these reasons, I strongly urge the adoption of the Coastal Barrier Resources Act at the earliest possible time. Thank you for the opportunity to testify.

Senator CHAFEE. Thank you very much, Mr. Varin, for your time. We appreciate that. That was extremely well done. We are grateful to each of the members of the panel. Thank you for coming, gentlemen.

The last panel will be Mr. Calhoun from the Audubon Society, Mr. Boothroyd for URI, Ken Hoffman from the Conservation Law Foundation, Dana Rowan, Mr. Godfrey, Miss Langlois, and Mrs. Fegan is here all the way from Wellfleet, Mass., for the League of Women Voters.

We will take a brief recess at this point before beginning with this panel.

[Brief recess.]

Senator CHAFEE. We have quite a big panel here. If people have lengthy statements, I would appreciate it if they would summarize them. Some of the points have been made. If you could just touch on some of the points and just reemphasize them if they have already been covered.

Mr. Calhoun from the Audubon Society.

STATEMENTS OF HOBSON CALHOUN, AUDUBON SOCIETY OF RHODE ISLAND; JON BOOTHROYD, DEPARTMENT OF GEOLOGY, UNIVERSITY OF RHODE ISLAND; KEN HOFFMAN, CONSERVATION LAW FOUNDATION; DANA ROWAN, NEW ENGLAND CHAPTER, SIERRA CLUB; PAUL GODFREY, FORMER MEMBER, U.S. DEPARTMENT OF INTERIOR'S TASK FORCE ON BARRIER ISLANDS, UNIVERSITY OF MASSACHUSETTS AT AMHERST; GAYTHA LANGLOIS, ECOLOGY ACTION FOR RHODE ISLAND; AND BARBARA FEGAN, LEAGUE OF WOMEN VOTERS, WELLFLEET, MASS.

Mr. CALHOUN. Thank you, Senator. I would be glad to shorten my statement.

Senator CHAFEE. You are for the bill.

Mr. CALHOUN. I am for the bill, right.

Senator CHAFEE. Good. All right, next witness.

Mr. CALHOUN. No, we have a couple of things to say here.

Senator CHAFEE. All right. Go ahead.

Mr. CALHOUN. My name is Hobson Calhoun and I am the assistant director of the Audubon Society of Rhode Island. I just make brief note that the Audubon Society of Rhode Island was established in 1897, making it the oldest private conservation organization in Rhode Island. It presently holds a membership of over 3,600.

Senator CHAFEE. Do you have 4,000 acres you manage?

Mr. CALHOUN. Yes, that is right, Senator.

Senator CHAFEE. That is pretty impressive.

Mr. CALHOUN. We got a call from the State about 3 months ago and they said, "Do you know your society is the third largest land holder in the State behind the Federal and State governments?' I said I did not. I hoped it wasn't true. It keeps us busy, anyway.

We would like to note that we feel the passage of a bill such as S. 1018 would have positive effects for Rhode Islanders. First of all, we have had other people testify that this would include the fact that taxpayers are no longer helping private interests to pay for such things as bridges, roads, and sewer systems which they are mostly benefiting from.

Second, with this important incentive for development being withdrawn and the resulting slowing rate of development of barrier systems, Rhode Island and other States will have more time to effectively plan for the uses compatible for these natural systems that not only offer tremendous recreational and esthetic values but also serve as natural and self-maintaining barriers between the many times angry sea and the areas behind the barrier islands and beaches, of course including wildlife resources and homes.

We certainly would like to add that the $5 million that would be expended in setting up the coastal barrier resources system would be negligible compared to the savings.

There are a few concerns that we would like to express at this time, some of which probably can't be addressed in this present bill but some that can.

First, according to the present version of the bill, the coastal barrier resource system listing would determine which areas would no longer be eligible to receive new Federal subsidies. Of the 30 barrier beaches identified by the 1973 Rhode Island barrier beach study, all except 3 are 2 miles in length or less. Most of the areas have at least some development associated with them. Indeed, some of them are much less than a mile in length. We trust that the criteria for selecting barrier beaches for inclusion in the reserve system would not discriminate against Rhode Island barrier systems.

Senator CHAFEE. I am not sure I get your point there.

Mr. CALHOUN. All right. Mr. Varin mentioned—well, I guess my point boils down to what Mr. Varin of the statewide planning program brought up in that he has looked at the maps, and I am sure his staff has done a much more thorough job than we have been able to do, but he is recommending maybe 60 other areas to be looked at as undeveloped areas. Indeed, our preliminary looks come up with something like five or six beaches which have apparently been totally overlooked by the initial maps drawn up.

Senator CHAFEE. Why don't you let us know what those are?

Mr. CALHOUN. Fine. My problem, Senator, is I have not seen a copy of the latest map put out. But I can certainly give you some that I think are.

Senator CHAFEE. You can work with Mr. Shimberg of our staff here and let us know.

Mr. CALHOUN. I would be very happy to.

One of them, incidentally, is in Jamestown, Mackrell Cove. I have not heard mention of that undeveloped area at all, although it is used by the town. It is a privately owned beach, privately owned land.

Second, and this is related to Mr. Lyons' suggestion as to areas that probably will be swept away by hurricanes or at least the buildings on them, what mechanism, we wonder, is available for the inclusion of additional areas in the coastal barrier reserve system? Twenty-one hurricanes have struck Rhode Island in the last 200 years. We wonder how this piece of legislation will be interpreted after the completion of the Interior Secretary's report 5 years from now when a developed barrier beach is brought back to its natural state by the navigable hurricane or storm. We feel a mechanism is needed for the inclusion of new areas by States in the coastal barrier reserve system.

Senator CHAFEE. I think that is a good point. In other words, a hurricane may come and clear everything away, 3 miles of beach, and then that would be undeveloped.

Mr. CALHOUN. That is right. We would like to see a mechanism in there for the States to have that included.

We would like to thank you—we will end up with that, Senator—thank you for the opportunity to testify here today. This is a lot shorter distance for us to go at least than to go down to Washington.

Although the society sees the inclusion of developed barrier islands and beaches—and this has been mentioned before—into the coastal barrier reserve system as a logical and desirable extension of this proposed legislation, the society endorses this piece of legislation, S. 1018. Since there are several outstanding areas where Federal cutbacks have severely hampered efforts to protect valuable and unique areas in Rhode Island—something you referred to yourself, Senator Chafee—the society is encouraged to see at least one federal cutback we can strongly support and know that until acquisition money is more readily available that at least these natural areas valued by all of us will be less vulnerable to the haphazard use which has in some instances been encouraged by Federal policies. Thank you very much.

Senator **Chafee**. Thank you very much, Mr. Calhoun.

Mr. Boothroyd?

STATEMENT OF JON C. BOOTHROYD

Mr. **Boothroyd**. What I would like to do is shed some light on the diversity and form of barrier islands and something about the process, the geologic process, acting on them. I think this can go toward answering some of the questions that were raised, for instance, about South Carolina.

I will talk first about morphology. Barrier islands exist in forms that range from simple to complex. Some basic forms are:

One, simple—this barrier is composed of a beach, a low, single foredune ridge, and a narrow back barrier area, 200 to 300 meters wide, that is mostly flat and may be covered with grass and low shrubs. Most of the barriers along the Rhode Island south shore fall in this category.

Two, multiple ridged—these barriers have several parallel dune ridges comprising the back barrier area and are wider, up to 1 to 2 kilometers, than the simple barriers. The dune ridges often support mature maritime forests. Bogue Island in North Carolina and Kiawah Island in South Carolina are examples of this type.

Three, Complex—barrier islands in this category have complicated back barriers composed of a combination of large isolated dunes, well-developed dune fields, and washover fans. The dunes may or may not be vegetated. These barriers range in width from 500 meters to 2 kilometers. Examples are Plum Island, Mass.; Currituck Spit, N.C.; and Padre Island, Tex.

Many barriers are some combination of the three types presented above. The point is, however, that barrier islands are morphologically dissimilar, necessitating varied management strategies.

Processes have already been pointed out. Processes acting to shape barrier islands are waves, wind and, in the vicinity of inlets, tidal currents. Wind, of course, moves sand off the active beach and around on the back barrier to build the foredune ridge and the back barrier dune fields. Tidal currents erode and deposit sand in the vicinity of tidal inlets. This process is locally important, not on the Rhode Island coast but is important in the vicinity of the South Carolina barriers.

However, the most important process shaping the barriers on the east and gulf coasts is wave energy, in the form of hurricanes and winter storms. An important effect of storm winds as they sweep toward a coastline is to push the ocean up against the barriers as a storm surge, which has already been well pointed out. The great September hurricane of 1938 caused a sea surface elevation 4.4 meters above mean high water, the normal high tide line. The surge allows the storm waves to break higher on the barrier. This effect is particularly devastating on low simple barriers such as those in Rhode Island; not nearly so devastating as the complex ridge barriers located elsewhere.

Sand is eroded from the beach and foredune ridge and transported: One, offshore, two, along the shore toward tidal inlets, and three, overwashed onto the top of the barrier. Although it is hotly debated amongst geologists how much sand is lost offshore, I believe very little. The morphology of the barrier exerts a control on the relative amounts of longshore versus overwash transport of sand. The simple barriers are prone to overwash that transports sand through gaps in the foredune ridge and completely over low foredunes. The sand eroded from the beach is redeposited on the back barrier as a washover fan, increasing the elevation and extending the island in a landward direction at the expense of the lagoon. This is the well-known "rollover" effect that is quoted so much. Overwash is not an important factor for multiple-ridged and some complex barriers; thus, they should be viewed differently from simple barriers in terms of management options.

SAND SUPPLY AND SEA LEVEL RISE

It is a well-documented fact that most, but not all, barrier islands of the east and gulf coasts are eroding, with removal of the foredune ridge, at rates varying from a few centimeters to several meters per year. A general rule of thumb some geologists follow is assume an average of erosion of 1 meter per year if quantitative data are lacking. It is also an observed fact that the sea is rising relative to the land surface at varying rates along the Atlantic and gulf coasts. The rate is 20 centimeters per 100 years, or 3 millimeters per year, in the New England area—that is important, as I will point out later—as measured on tide staffs for the years 1890 to 1970. The rising sea causes the salt marsh to expand outward over the upland surface in the lagoons and causes old docks and piers to be slowly submerged. The third observed fact is that very little sand is now supplied by rivers to the barrier islands, except for parts of the Mississippi Delta. Much of the sand is now either trapped in the estuaries or the rivers flow on resistant bedrock and there is no supply.

The link between sea level rise and beach erosion, versus storm frequency and beach erosion in the short term—that is, 50 to 100 years—is not clearcut. Few geologists would disagree that sea level rise over the long term, hundreds to thousands of years, has cut off the sand supply by drowning the river valleys and is slowly submerging the coastal plain on which the barriers lie. In the short term, however—and this is important for management—I believe it is storm frequency, coupled with sand supply from adjacent barriers, or lack thereof, that determines the rates of beach erosion.

It is of the utmost importance to understand that an average rate of beach erosion is a derived number that can be extremely misleading. Cutting back of the foredune ridge proceeds in jumps or spurts during severe storms with no net erosion occurring in the intervening time period. Measurements carried out weekly for 4 years, and continuing now, at Charlestown Beach, R.I., indicate that 21 meters of foredune recession occurred during the winters of 1977-78, 7 meters during the February blizzard of 1978. Three homes were lost and many others heavily damaged. No foredune erosion has occurred since 1978, and five new housing starts were made this past year on the back barrier, directly as a result of there being no storms in the intervening years. People think it is safe again.

In summary, I think the geologic message is clear. Most barrier islands are eroding but at varying times and rates that must be addressed by a flexible management strategy. I believe this legislation is a sensible and important step in that direction. Thank you.

Senator **Chafee**. Thank you for that very interesting paper, Doctor. I am not sure of the exact definition of morphology.

Mr. **Boothroyd**. It is the shape or form of the barrier.

Senator **Chafee**. Fine. Thank you. I might have some questions for the panel when we get through.

Mr. Hoffman from the Conservation Law Foundation.

STATEMENT OF KENNETH HOFFMAN

Mr. **Hoffman**. I am Kenneth Hoffman and I am an attorney with the Conservation Law Foundation of New England. The CLF is best known with very little love in Rhode Island for having been the lead plaintiff in the Georges Bank litigation for 3 years.

One of our three major projects right now is in land use policies in critical public and private lands. One of those focuses is barrier islands protection.

We are delighted that you have the bill and that what method is used to arrive at the result is irrelevant, whether it is outright prohibition or the termination of the subsidies essentially. So the method here is a perfectly good one. I think it stands a good chance of succeeding.

There are a few shortcomings that threaten the purpose, especially the energy resource issue and the revenue sharing grants. I will just summarize this. I won't read the testimony of the issues we would like to bring up.

I think the purposes could be enhanced by adding as a purpose the protection of the barrier islands themselves, simply as one more issue, and not just the fish, wildlife, and other natural resources.

I think in the definitions it would be wise to touch on financial assistance as including general or special revenue sharing grants. The House bill, of course, specifically exempts them. Revenue sharing could be used for development. It is something for negotiation on your part. But if possible, it would be very helpful to include it, because if it is not kept out, it could defeat the purpose of the bill.

The limits on the expenditures in section 5 allow expenditures except in cases where an emergency threatens life and property on lands and waters adjacent thereto. I think that can be improved by allowing expenditures on the unit or adjacent to it, but only for the protection of life rather than property. That way we would solidify the end of the subsidy.

On the exceptions, the energy resource one is a very large exception. Contrary to the earlier testimony suggesting that none of the exceptions be tampered with, we would urge that exception be taken out or, if that is impossible, to substitute, say, a narrower exception, allowing transportation but not allowing buildings. It is unfortunate that the barrier islands are too closely collected with energy development and the buildings necessary for it.

Senator **Chafee**. Do you think that is really a problem? What do you envision presenting a difficulty?

Mr. **Hoffman**. If, for instance, offshore loading of tankers were a good route to go for a marine terminal, it might be very handy to put facilities closer to that terminal rather than, say, on shore. That would be one possibility.

Senator **Chafee**. Do you think that might fall within our definition of exception?

Mr. **Hoffman**. I think it does, because it is a facility for energy development. I think especially in the gulf coast, less likely to the north, you might have a problem with that.

Senator **Chafee**. That is a good point.

Mr. **Hoffman**. Another exception, on military activity, I don't know if armed forces training is immediately essential to national security. I suspect there is no real policy on that. If it were possible to prohibit training on the barrier islands, especially the undeveloped ones, we could still give the marines perhaps a more developed island, I would be very happy to keep that out as well.

Senator **Chafee**. That is just the place they won't let the marines. Don't make my job too difficult now.

Mr. **Hoffman**. It is my job to at least be the spur, if not more.

I guess the last point is on the influence of the States in the processing.

Senator **Chafee**. When you have a provision essential to national security, the word essential is a pretty tough hurdle to get over.

Mr. **Hoffman**. It is.

Senator **Chafee**. Go ahead to your next point.

Mr. **Hoffman**. The next and last is the influence of the States. It is very powerful. In Massachusetts, contrary to Mr. Bewick's statement earlier, it is very inconsistent, because on the one hand he said the tools are there. The tools are there and there was an Executive order, but, in fact, immediately after that Executive order the Governor signed a water district bill for that same barrier island. It cuts both ways. I think certainly in the Massachusetts case the policy is not at all well established.

So those are some of the suggestions we have for you. We are pleased with the bill and I hope it passes, perhaps with even some tougher language.

Senator **Chafee**. Thank you very much, Mr. Hoffman. That is helpful.

Dana Rowan, Sierra Club.

STATEMENT OF DANA ROWAN

Mr. **Rowan**. Good morning, Senator. It is a pleasure to be here.

Senator **Chafee**. This is a long statement. I hope you will summarize it.

Mr. **Rowan**. I will.

I represent the New England chapter of the Sierra Club. I would like to point out since November of last year the board of directors established a national policy on barrier islands, and I am pleased to say that it is consistent with the intent and many of the specific components of your bill. I thought you should know that. I think when hearings continue in Washington, you will find support down in Washington from our national office there.

I would like to just preface a few of my comments by noting that I really got my first personal exposure to barrier islands while working on a barrier island in Siesta Key. It was quite provocative standing up on the humpback bridge seeing about 25 condominiums going up at one time. It was just phenomenal. I really got a good grasp of punitive impacts to barrier islands. From there on I became very much concerned about the future development of barrier islands.

There are several concerns that the Sierra Club has. Some of them have been covered. I will just briefly review them.

The existing array of Federal subsidy programs for barrier island development conflicts with the protection objectives of the Coastal Zone Management Act and really undermines the effectiveness of the act's consistency provisions.

There has been some mention of the consistency provisions and how they interact with the intent of this legislation. I would like to point out that a lot of the coastal zone management program policies are merely policy. And in the case of Massachusetts, there are a lot of policies that are not backed up by law and, in fact, there is counterproductive case law in implementing those policies. I think Ken pointed out the case of Plum Island where the Governor supported an Executive order and yet is providing through policy actions sewage and water supplies. So there is inconsistency there.

I would like to also mention that Congress went on record as recently as 1980 in the Coastal Zone Management Improvement Act that it is in the national interest to protect barrier islands and to manage the coast so as to minimize the loss of life and property from improper development and destruction of natural features. I think it is incumbent on Congress to be sure that its own expenditures work to favor declared national policies.

The Federal subsidies for the development of undeveloped barrier islands are costly and an unfair burden on taxpayers.

Senator **Chafee**. I think we have pretty well covered those. I must say your example of Daughin Island is a classic case.

Mr. **Rowan**. It really is. I think the Life magazine coverage of the Daughin Island damage had some very vivid pictures in it. It was fantastic.

I would also like to mention there is a personal experience that we are facing right now in Massachusetts, and that is in Hull. Most of the publicity in Hull recently has been over the casino gambling proposal. But there is also a high rise elderly housing complex being proposed for a thin neck of land in Hull which is directly exposed to the ocean, and it is proposed to be built on wetlands and barrier island areas.

Senator CHAFEE. That violates all the rules. Let's take No. 3.

Mr. ROWAN. OK. The bill is consistent with the Reagan administration's desire to strengthen States' rights. Once the Federal Government is removed from the subsidy role, States and municipalities will have the lead role in determining and supporting what they believe is appropriate development for barrier islands. Many States have already articulated their policies in State coastal zone management programs.

I would also like to point out I listened to a State senator from South Carolina during the coastal zone 1980 program in Florida and he emphasized that his State wanted to take the lead role in determining the future of coastal development. I thought that was interesting, especially since South Carolina was brought up in previous conversations today.

Federal subsidies do in fact induce development of barrier islands. As recently as 1978, the Department of Housing and Urban Development still denied that the Federal flood insurance program induced coastal development in flood hazard areas. Today, with mortgage rates soaring to 17 percent, the 3 percent SEA loans are not only relief but I think a generous windfall. It is hard to believe that the Government chose to cut 7-percent loans to students, yet still permit homeowners who have just lost their houses to go out and build another one with 3-percent Federal loans.

No. 5, coastal barrier islands face unique problems and warrant special attention under Federal legislation.

Senator CHAFEE. This is very important, because the counterargument we get on this whole thing from—you have heard me mention South Carolina, but that seems to be where the crux of the opposition comes from. The argument is that why single out removing Federal flood insurance from barrier islands? You are not removing it from riverine areas. You are not removing it from valleys. You are only doing it for the barrier islands. Therefore, that is discriminatory and unfair.

You list those reasons in your point five, which I think are good. The development pressures are intense. I didn't know 75 percent of the population lives in coastal counties. Then you go on, the coastal hazard zone is well defined. Development of barrier islands actually increases the hazard potential.

Here I am giving your testimony for you. Go ahead.

Mr. ROWAN. OK. I will read that, sir.

Development pressures along the coast are very intense. I think you look at land values and you look at speculations. Look at New Jersey, Maryland, and Florida in particular, which not only have developed barrier islands but have booming cities on them.

The coastal hazard zone is well defined. I think that there is almost no stretch of exposed Atlantic or gulf shorefront that has not experienced the fury of a hurricane or major northeaster during the past 50 years. I think the time period could be even shorter than that.

Development of barrier islands actually increases the hazard potential I think generally on barrier islands because they build too close to the ocean. They probably build closer than they like to except that their lot depths don't offer them the opportunity to build further from the beach than they can. The expense to the Army Corps of Engineers and State agencies is growing in terms of shoreline protection for these communities.

Barrier islands are expensive to develop. Most developers need the generous subsidies of the Federal Government to make barrier island development economically feasible. Barrier islands require bridges and causeways for convenient access and they tend to be expensive. Island water supplies are generally quite limited and septic systems built in porous sand typically malfunction as development densities rise. Once again, solutions to these problems usually require the generous support of the Federal Government. In fact, Federal studies have shown that sewer construction on barrier islands commonly cost, I heard, two to six times instead of two to three times that of the mainland.

Barrier islands in their natural state provide effective protection of other valuable coastal resources, such as wetlands, highly productive estuaries, and upland habitat.

Senator CHAFEE. You have to summarize and conclude here, I am afraid.

Mr. ROWAN. I would just like to close this with one point, one observation. That is, the Conservation Law Foundation in 1980, "The Year of the Coast," conducted extensive demographic research and found that less than 20 percent of the people residing on barrier islands have ever experienced a coastal hurricane or severe winter storm. The public really has a limited grasp of the terrifying forms of the major coastal storms. I hope that with your fine leadership and other Members of Congress that we can pass this bill in advance of a major storm rather than in grievous response to one. Thank you.

Senator CHAFEE. What do you think of the science of beach stabilization, jetties, and so forth. I would like to ask the panel that. Do those things work? I have never understood it. What do you think of that, Doctor?

Mr. BOOTHROYD. A big cat out of the bag when you talk about those things.

Senator CHAFEE. Thirty seconds or less. Do they work?

Mr. BOOTHROYD. Yes. It is possible to build a structure that will work, but not at a cost where you get any cost-benefit ratio of return. The Corps of Engineers is now getting out of the stabilization business and so are most States. In Rhode Island where protection is going forward at the present time, it is done by the private homeowner.

Senator CHAFEE. Using snow fences and so forth?

Mr. BOOTHROYD. No. A snow fence does not protect. It traps the sand. They are using large stones, riprap revetment, to fill it on whatever dune is there. The big problem with that is the sand that is there is somebody else's sand, as the sand moves along the shore or over the top. So you are stealing your neighbor's sand.

Senator CHAFEE. When you put a snow fence up?

Mr. BOOTHROYD. No, when you put the stonework up, riprap revetment. So for that reason, most coastal geologists and engineers try to dissuade people from using any sort of stonework at the present time, unless it is absolutely necessary for a dock. Nobody is suggesting the border of Providence shouldn't have protection.

Senator CHAFEE. Thank you.

Mr. Godfrey?

STATEMENT OF PAUL J. GODFREY

Mr. GODFREY. Thank you, Senator Chafee, for inviting me this afternoon. I don't see any reason to read the statement I have since many of the comments have already been made. There are extra copies of it. But what I do have as a contribution which I would like you to consider——

Senator CHAFEE. Mr. Godfrey is a former member of the U.S. Department of the Interior task force on barrier islands, so he has spent a lot of time on that. We appreciate your coming down. You are up at Amherst now?

Mr. GODFREY. The University of Massachusetts at Amherst. A number of my former students are working on the updating of barrier island maps and things supporting your bill. I am sorry for any problems, but we will correct them, I am sure.

What I thought I would do is run through a short slide presentation.

Senator CHAFEE. We are going to be out of here by quarter of, so everybody has to move right along. We have two witnesses after you.

Mr. GODFREY. What this will do is provide the scientific basis for supporting your bill.

Senator CHAFEE. All right. Go ahead.

[Slide presentation.]

Mr. GODFREY. Many people have already commented on the nature of barrier islands being very thin slivers of sand along the coast and molded and shaped by wind and wave, as we see happening here on Nauset Beach in Massachusetts. But this type of problem—storm surges, high wave action—has always created difficulties where there are developments on barrier beaches.

The storm of 1978 produced very graphic evidence of what can happen when a storm goes over a developed barrier. This has happened time and time again, as indicated in testimony and many people have already commented on.

What has been happening over the years is there has been a very, very dramatic rise in the cost of damage to the country as a result of hurricanes, and even in the last several snows we know the costs are now in the building. The curve on the left is skyrocketing higher and higher every year.

What is the problem with developing barrier islands? Why do we have all of these difficulties, great costs? When people move down to the coast, they are enticed by these beautiful scenes. But there are some basic problems involved in moving there. It all started with the ice age. Since the last ice age, the sea level has been rising at the rate of approximately 1 foot a century during the last

5,000 years or so, as you have already heard mentioned. So the data are very clear. The sea level is going up. We can see all around us up and down the coast, evidence of that, such as the stumps on the oceanside here which are only about 200 years old. Behind barrier islands up and down the coast one can find stumps, snags of trees that were alive during the early part of this century, as a matter of fact.

Down in South Carolina where they don't seem to worry about the sea level too much there is an intertidal salt marsh surrounding what was a cedar tree just a few decades ago.

What happens is that as the sea level rises, the barrier beaches and the shoreline are pushed landward. Portions of the land that were once contiguous can become islands. So the whole process is basically a retreat of the coast.

What causes the retreat? One of the main driving forces is the great storms that come up and down the coast which are predictable in terms of their current just about every year. But they come along the coast in varying frequency, with some parts of the shoreline more susceptible than others, such as the Texas coast, New Orleans, and the outer banks of New England. They get a large share of coastal storms.

Also, storms tend to come in what appears to be a frequency. As Dr. Boothroyd mentioned, we have been in a lull or quiet period along the east coast where hurricanes have not been very common for the last decade or so. But no one knowledgeable of coastal affairs expects that lull to continue. But that is when most of the massive development along the shoreline has proceeded, such as Ocean City, Md., which you see here. The waves pound the beach. Then they move sand back and forth up and down and in various directions. The whole role of the barrier island, which has been mentioned, has been to protect the back side of the lagoons, salt marshes, from the direct force of the sea.

How can these barrier islands actually do this? For example, this is Bogue Banks, N.C. In about the early sixties there was a proposal to dredge the sounds of this barrier island system and pump the sand on the beach, at a cost of $15 million in 1962. The National Park Service undertook a research program and spent a few thousand dollars on how a barrier island works.

I would put in a plug here for the role of research in terms of understanding what is going on.

As an example, we have been looking at a section of this beach for the last decade. This is the way it looked about 10 years ago, when there were tremendous storms going up and down the coast. Water swept across this barrier many times. But 10 years later it is still there, doing very well. Our students have changed. And the dunes are growing and there is no problem. The barrier island is moving and is very flexible. So we have found that contrary to what the basic idea was that it was washing away, they are not washing away. They are moving around, however.

This model shows various stages and how the barrier island migrates landward with overwash and the formation of inlets, the island closing and inlet deltas closing into salt marshes. This has been documented now up and down the coast. It is well known in the scientific literature. The scientists have failed to dispute this process. Your bill is on sound footing from that point of view, even if the buildings are not.

Barriers also migrate along the shore in this direction. On one side you lose the sand and on the other side the sand builds up. But they are all dynamic, moving structures. So the few thousands of dollars spent to study Cape Lookout has resulted in a savings of over $15 million and who knows how much else because the Park Service policies and data have been used in other barrier island systems elsewhere.

We can classify barrier islands—we have been doing that for the study on this barrier island survey—into various types, barrier spits and barrier beaches. Rhode Island has the Baymouth Barrier where the sand structure is attached to both sides of the mainland or source. Then there are spits, long curving points or fingers of sand sticking out into the ocean. They come in various categories.

We have been able to classify barrier islands by morphology. We see these all along the United States. That is just for interest here.

Also, we have been able to see barrier islands do come in topographic types in which some are more susceptible to flooding than others and, therefore, may be more stable from some point of view. They are all subject to the same types of coastal processes. They vary from very high, on Georgia's coast, through dune fields, dune ridges, and on down to barrier islands that get lower and lower. Type 6 is an overwash barrier flooded by every major storm. Low multiple beach ridges are salt marsh barriers. Unfortunately, all of these have been treated the same way rather than looked at as different types. Some are very, very susceptible to coastal damage. Sand moves around. There is the problem of overwash. Sand goes through inlets and also is moved by winds. We can see how sand moves along the beach. We can see the action in many ways. Waves landing on the beach move the sand along in the general direction that the waves approach. This is a constant phenomenon as waves are approaching the shoreline.

This results in the growth of spits, like this sequence here in Barnesville. So that is well known.

But one way of seeing how littoral drift works is if you interfere with it or build jetties—you asked that question a moment ago—this is what happens when you build jetties in front of an inlet. Sand moving along the beach builds up on the inside and then erodes away from the lower side where waste comes ashore. You see an artificial pump fill situation where the sand is being pumped across the inlet to the other side. That is a great expense. There is nothing more expensive than pumping sand.

This is along South Island. There is severe erosion on the lower side and it is built up on the other side. That is an area about to disappear in the near future; yet it is being subsidized by Federal programs. Clearly this happens time and time again. The coast of New Jersey has excellent examples of this. Most of the coast of North Carolina is just a rock wall with some walls built up on the side, although there are some dune areas in North Carolina. Cape Hatteras was built in front of the lighthouse in 1971. This is an aerial view. We have been taking a view from photographs of the top of that lighthouse looking southward, in other words down-drift from the jetties. In 1969 the shoreline looked like this. It was fairly straight. The walls were built. Immediately massive erosion began to start. Watch the road and dune and land disappear, until about 1979 there we are. It is still going. The shoreline is still disappearing. It is threatening national park facilities there as well.

Overwash is a process that moves sand over the top of the barrier during storm surges and can completely flood a barrier, surrounding it. These are dunes out at the Coast Guard Beach in Massachusetts. They are completely surrounded by sea water. The basic process, however, that is involved here, an ecological response that goes on, is that as the overwash goes across the barrier island, it carries sand from ocean to bay on the back side. New vegetation starts on the overwash areas, such as No. 3. A big storm can overwash it like four and five. Everything comes back again.

The natural ecosystems are highly adaptive to the migrating barriers. As an example, just 1 year is all it takes to have complete recovery of an overwash site—from this, to that, to the next picture, in just 1 year. The grass grows up through this sand, like in this little model. Every time there is an overwash, this vegetation comes through. Also, grasses and plants can start on top of the overwashed sand. That is very typical in Rhode Island and Massachusetts.

In any case, the vegetation and plants are adapted to the retreating barrier island and survive. In a very short time all traces of overwash conditions can disappear. So the natural system does work very well.

A huge storm like the blizzard of 1978 doesn't seem to have much effect on a natural barrier. There is a before and after slide. Storm waters went across that, but there was no real damage.

This is another example on Coast Guard Beach in Massachusetts, a massive overwash during the 1978 blizzard knocking down lines and burying a parking lot. That was a park service facility in the 1970's. It was totally obliterated and overwashed by the 1978 blizzard. Don't build your bathhouse on the beach is really what that is saying.

What we see here is today the area is recovering with a little bit of help. The park service has learned its lesson. I might add, the National Park Service has supported a great deal of the research on the barrier islands. We also find on this barrier the natural system is recovering as well. This is a little line of beach land that came in soon after the storm, and 1 year later it has risen to this degree. The natural vegetation is coming back quickly. We have seen this happen many times.

When waves smash the seawall, they can undermine it or the beach washes away in front, which is a typical problem. The condominiums in Ocean City, Md., are going to fall in very soon as the beach moves. Don't buy property there.

But we can see major overwashes here, too. It was a classic example of the major storm overwash. Vast amounts of rock and gravel were pushed across the barrier onto the backside, as is the natural response here. A very high layer of sand and gravel was deposited on the south side. This is how the barrier moves. But the normal procedure was to bulldoze it all away and go out and rebuild. At that time it was the largest expense for disaster relief to that point. This happened before, as many people have mentioned, Mr. Lyons and others. The hurricane of 1938 took out the Watch Hill area completely. It also did the same on the Charlestown beaches. It is well known that it disappeared. It overwashed and it moved the sand to the backside. Thanks to the farsighted programs of the State of Rhode Island, one of those areas became a State part. It is now used as a classic example of a State taking charge and saying no more of this foolishness on these barrier islands. I have used this picture time and time again in my travels around the country.

We have seen many overwashes in the past like in 1938 at Cape Hatteras. Dune lines were built and then structures moved out to the sea. Now in 1973 there was a major overwash again, pushing it all back, and then at great expense to the taxpayer, $2 million after this event, the big overwash, the road was buried about 4 feet, sand was pumped from a recreational beach up the shoreline, in front of those buildings, a new beach built, at a cost of about, as I said, $2 million. It was finished in 1973. There it is.

By 1979, it was practically back to where it was before and ready to overwash once again. So how long are we going to put up with this type of problem?

Finally, there are inlets. This is an aerial photograph of an inlet in North Carolina. Inlets can be temporary or fairly permanent, but they all shift and change. In the fifties, this inlet was open. It began to close in the sixties, and by the seventies it had closed completely.

What happens here? Well, the inlets are important for biological transfer back and forth through the sound, but they also provide a base on which a barrier island can migrate and also where a new salt marsh can form. The shoals behind a closing inlet become salt marshland. Over a few years, it increases tremendously, producing an extremely important biological area. There are beautiful examples of inlet derived salt marshes on these photographs on the wall in Rhode Island. This is just a model for that. The inlet is open, and closes, and the land behind becomes a salt marsh. So a whole barrier chain like this can be just a whole series of inlets, tidal actions and overwashes. When they are left alone, they do quite well. But when people do interfere, a classic case is Ocean City, Md., where the whole shoreline has been changed dramatically by the construction of jetties. It is necessary to keep increasing the jetty on the north side of the inlet while on the south side there is massive erosion and retreat of Assateague Island. In this case the island is really washing away because of the jetties.

The proposed $92 million jetty program at Oregon Inlet in North Carolina will undoubtedly do exactly the same thing in North Carolina. So we consider that a colossal waste of money and a colossal mistake if we do it.

We have done this at Moriches Inlet, but strangely this inlet opened up, became a little wider in 1980, and a new inlet opened just east of the jetties. Nothing is behind there but the bay. Yet $11 million was spent to fill that gap.

There it is back again. It probably would have filled in all by itself anyway. So there goes $11 million—$102,000 washed away in one storm.

Here are the barrier islands. They blew it open, the Corps of Engineers, because the town behind it wanted a new inlet because one had closed to the north. The inlet got bigger and bigger and now is closing again. The only way this stays open is by continuous dredging. So it is not doing what they wanted it originally to do. But it is a nice inlet. But there are inlets which will need to be managed, like Bogue Inlet in North Carolina and others where commerce and national security are involved. So we will have to do that.

Finally, we are really concerned, as a scientific community and those of us who have been involved in coastal research, about what is going to happen in the future. We see tremendous disasters coming, such as on the south shore of Long Island or the New Jersey coast, like Stone Harbor and Atlantic City, N.J. and Ocean City, Md. There are brand new condominiums rising on the beach on an eroding, receding shoreline, and in many cases supported by grants from Federal programs. It is taxpayers' money here on these nice billboards. So it goes on.

Bo Banks, which once had beautiful high dunes, is now having their dunes leveled to make more trailer parks and boat basins; again, mostly with support by Government money.

This is a hotel being built in the seventies on an eroding shoreline. See, it washed over it there. A few years later there is a new condo rising next to it. The high tide comes up to those seawalls. The beach is replaced continually by pumping and filling.

Finally, toward the end, here is the Florida coast and then the Gulf coast, smashed by many hurricanes in recent years. But here are brand new high condominiums rising on clearly overwashed beaches. Unbelievably, there are many people building as far out on the beach as they can go, right on a rapidly disappearing shoreline. They are dredging right to the beach, making a perfect site for an inlet.

We don't need any more of them. We don't think the country can afford it. For that reason, I think your bill is on very good scientific footing.

Senator CHAFEE. Thank you very much for an excellent presentation.

I must say, I think we saw one slide there that showed about as great a distortion of what Federal programs were ever designed for, when you find farmers home loan money used to build a condominium for some wealthy person on a sand beach, which is about as far away from what the purposes of the original legislation were of the farmers home loan program.

Doctor, we are very grateful to you.

Mr. GODFREY. Thank you.

Senator CHAFEE. Miss Langlois?

STATEMENT OF GAYTHA A. LANGLOIS

Ms. LANGLOIS. I will make my comments very short; one, because when you speak near the end, everyone has said all that needs to be said.

Senator CHAFEE. Miss Fega is after you.

Ms. LANGLOIS. She is probably going to have the same problem.

I can summarize much of my written statement. You have a copy of it, so I won't read it.

I would like to say that in our statement I am representing the Clean Water Committee of the Ecology Action for Rhode Island. Ecology Action has routinely made comments and been involved in issues and decisions concerning coastal problems. So this is not alien to our concerns.

I prefaced the early part of my statement by noting that our coastal zone management plan in Rhode Island clearly recognizes the value of barrier beaches and their environs as a coastal resource. The previous speakers who have come before me have certainly emphasized the extent of these coastal resources in Rhode Island and some of the problems that have arisen.

Suffice it to say that in spite of strict regulations that we have here in Rhode Island, development of coastal barrier regions has continued. The previous speakers have already linked the importance of the flood insurance program with heightening that development. So I am not going to again read the details of my statement. I think it is self-explanatory.

However, I would like to go on and do two things. One, I would like to summarize what we see as the strengths of the bill and the few concerns that we have with it; and then, second, I would like to just summarize a few points that I have gleaned from hearing everyone today that I think points up the need for your bill in addition to current coastal zone management techniques.

We feel the following strengths in the bill as proposed to be these: The wholistic view of seeing coastal lands as a coastal barrier resources system. I believe in that connection that we would agree with what some of the previous speakers have said, that to the extent possible, we would like to see developed beaches, where possible, to be included, because some of the—you know, it is almost a self-predicted thing. Once a few buildings are there, you call it a developed beach and then more development occurs there. So if Federal funds could be pulled out of development of slightly developed beaches, it certainly would be an advantage.

Senator **Chafee**. Sure. A good point.

Ms. **Langlois**. A second strength we see is a 3- to 5-year review process to be conducted by Congress along with the reporting system, which will include extensive reporting. We did not see from the wording of the bill what was to come from those reports or what was going to happen at that point. I think that is something you might want to think about.

We are also pleased to see that Federal expenditures would still be permitted for conservation projects, fish and wildlife protection, and, of course, scientific research. In that regard, as our previous speaker mentioned, there is a very great importance of this research which enables us to make good decisions about management of these areas.

I would like to just mention the coastal resources center in Rhode Island and the extensive studies they have been doing. I know some of those reports—I think Dr. Boothroyd has been part of that.

Mr. **Boothroyd**. Yes. That is sea grant supported work on the south shore.

Ms. **Langlois**. Some of those reports are coming out right now. It may be very helpful to you to take advantage of any really current, specific information that might be useful.

Some of our concerns—most of these have already been mentioned so I will say them quickly. One was the carte blanche approval for expenditures——

Senator **Chafee**. That has been touched on. That is a good point.

Ms. **Langlois**. I think that is important. We are also concerned about expenditures for the maintenance of existing channel improvement and related structures. Although those expenditures might be necessary, they certainly should be tied to best management practices and mitigation of possible damage to existing barriers. We are also, as I mentioned, concerned that it is limited just to undeveloped barrier regions.

I mention a few other questions there which I am not going to comment on. They just have to do with specific wording, and it may be just that I didn't interpret them as you meant them to be interpreted.

So to conclude my comments, what I can see as a real need for this bill is that in looking at the problems confronted by coastal zone management decisionmakers, there are several things that emerge. One is the problem of enforcement of regulations. If you have a permit system and you make people go through the permit system in order to build or alter these coastal lands, but then there is no mechanism for following up on that effectively, because you can imagine the enforcement provisions are often underfunded, then in fact—let me give you just a quick example.

Some of the buildings that have to meet regulations, they have to be built in a manner to meet flood insurance program standards, over time. Let's say they have to be put up above a certain level. As I understand it, the height of the building is related to the cost of the insurance. I understand that is also under review. Just, you know, can you build high enough so the cost of your insurance is extremely low? But over time they fill in those sections of the building. First there is a little shed. Then there is a little dressing room. Then there is a shower room. Then there is essentially another floor. Once that is done, then the whole mitigative effect of putting that space there for the water to run through is gone and in fact the protection that supposedly was built in is no longer there.

The same could be true of coastal resource regulations concerning building codes, septic systems, and so forth. If they are not maintained, if they are not enforced properly, then they can in fact lead to costs down the road. So I am not sure how one gets at solving that, but at any rate, it reduces the effectiveness of the coastal zone management plan.

Another problem is the whole review system through the courts. It seems that the courts are not yet very sensitive to the fact that these coastal barriers are unique, that they are not the same as a piece of land somewhere else. Because of that, the judgments tend, as an earlier speaker mentioned, to be based on case law that is either outdated or not adapted specifically to coastal zones.

Consequently, because so many cases are lost in court, the review boards become very reticent to stand up on their regulations and they will tend to allow variances and permits to be granted that probably shouldn't be granted.

Senator CHAFEE. Those people going to court should get people like Dr. Boothroyd and Dr. Godfrey there to testify.

Ms. LANGLOIS. Well, in some of these recent cases they have had good testimony and the lawyers, you know, have presented cases that do document that it is within the law to uphold these regulations, and still judges will make these decisions. So I think it is just a catching up process. But I am pointing it out as an example of how the coastal zone management program is not as effective as it should be, and so we need another tool. That is why Ecology Action sees that your bill would represent another tool for slowing down and retarding this growth process, possibly enabling these other measures to catch up. Thank you.

Senator CHAFEE. Thank you very much. I must say, I thought I knew the State constitution fairly well, but I didn't know this specific provision you quote in the heading of your masthead of your writing papers. So that is good.

Ms. LANGLOIS. You may feel free to use it.

Senator CHAFEE. All right, fine.

Miss Fegan, who has come here from Wellfleet, Mass.

STATEMENT OF BARBARA FEGAN

Ms. FEGAN. Thank you very much, Senator.

Senator CHAFEE. You have been very patient.

Ms. FEGAN. That is probably my only virtue. I am going to be very brief.

I am Barbara Fegan. I am delighted to inform you, if you don't know already, that the bill, S. 1018, is on the national agenda for the National League of Women Voters of the United States. So you will be hearing testimony from the national office also.

I am just going to mention five things very quickly. I think that all of us learned something we already knew today, that a barrier system is an unstable system, that nothing that man does to it enhances it, none of man's intervention seems to change the natural processes.

I live in Wellfleet where we have the Marconi site where the first radio message was sent from this country to Europe. Those towers have eroded away since that happened because we lost the meter average of shoreline in my community. I do understand in 4,000 years there isn't going to be a Cape Cod. I am willing for the processes to take place.

Building in fragile, unstable geographic areas as a capital investment carrying capital risk should be the risk of the entrepreneur, it should not be the risk of the taxpayers of the United States, which is precisely what you said in your opening speech.

I think you have to close the 1983 window in the Federal flood insurance tomorrow or as soon as possible because we cannot afford those 2 years of people coming in and finding their loopholes and finding whatever loopholes they find. I say close that window before the winds develop and blow through.

I am concerned about the maps. I wonder—not to their accuracy. I am content at least from the list of the Massachusetts identified barrier systems. There may be some others to be added to them. I would like to see some maps referenced in your legislation or the barrier beaches named themselves, with some method of consultation, so that new beaches, new barrier systems could be added in the future. Would you please plug in a little consultation with the State when you talk to agencies that have these responsibilities?

Senator **Chafee**. We are doing that. I am not sure why you should be concerned about the maps. We referred to the maps. The maps are there. We have done it in the Alaska Lands Act where we last year took, what was it, 85 million acres for our national parks and wildlife areas. There is really no other way to do it. We cannot get into a description in the act. But I think the point about being able to add to it is very important, without having to go through Congress.

Ms. **Fegan**. Yes. Then just very, very quickly. After World War II, the Department of Agriculture decided to develop different criteria for the making of patterns for women's clothes. They described certain measurements that would obtain according to any size of a woman, a certain height and weight. Then we got our size 14 universal. Now, that universal size 14 does not fit every woman of the same height and weight because we are constructed a little differently one on one. I would say that even in the other natural systems, that we have different systems over the United States and perhaps an accommodation for nonstructural interventions, we ought to have that possibility. I am speaking particularly for being able to plant beach grass on dunes. There is a grassy kind of weed—excuse me; that is not a scientific term. [Laughter.] But there is a grassy kind of weed that the people in Louisiana need to stabilize some of their barrier beaches because of what the Corps of Engineers has done to the Mississippi River. It isn't the same, untouched system. So when you get to the mouth of the Mississippi, you have many processes that have been interfered with. So there ought to be ways to accommodate those nonstructural protective measures.

Senator **Chafee**. We have done that, I think. In the bill we provide for the protection of fish and wildlife enhancement, including the acquisition of fish and wildlife habitat.

Well, if we haven't done that enough, that is a good point.

Ms. **Fegan**. Thank you very much.

Senator **Chafee**. Thank you.

Mr. Mark Reeve from the Conservation Law Foundation of Rhode Island has a statement. If Mr. Reeve will submit that, we will certainly include that in the record. [See p. 95.]

Thank you all for coming. I appreciate it. The hearing is adjourned.

[Whereupon, at 1 p.m., the subcommittee was recessed, to reconvene subject to the call of the Chair.]

[Statements supplied for the record and the bill, S. 1018, follow:]

Statement of New England/New York Coastal Zone Task Force—Presented by Richard Delaney, Chairman, on S. 1018

I am Richard Delaney, Director of the Massachusetts CZM Program and Chairman of the New England/New York Coastal Zone Task Force. The Coastal Zone Task Force, whose members are the directors of the coastal zone management programs of Connecticut, Massachusetts, Maine, New Hampshire, New York, and Rhode Island, was established in 1974 to promote coordination between the region's coastal programs. We appreciate this opportunity to comment on S-1018. Following are some general observations and comments on the need to protect those remaining undeveloped coastal barriers; then some specific suggestions to strengthen S-1018.

The major point we want to make is that legislation such as S-1018 that will protect undeveloped coastal barriers should be passed as soon as possible. The time is "ripe" for a measure such as S-1018 to be adopted by the 97 Congress.

The budget savings aspects of S-1018 alone make it an appropriate piece of legislation to complement the Fiscal Year 1982 Budget Act.

The Congress has already expressed its endorsement of the need to protect undeveloped coastal barriers. First, in October of this year, the following was added to the policy section of the Coastal Zone Management Act:

> "..A)...the protection of natural resources, including wetlands floodplains, estuaries, beaches, dunes, barrier islands, coral reefs, and fish and wildlife and their habitat within the coastal zone..."

> "..B)...The management of coastal development to minimize the loss of life and property caused by improper developme in flood-prone, storm surge, geological hazard and erosion-prone areas and in areas of subsidence and salt water intrusion and by the destruction of natural protective features such as beaches, dunes, wetlands and barrier islands..."

Second, the Reconciliation Budget Act of 1981 probibits the issuance of flood insurance policies on undeveloped coastal barriers after 1983. W believe that S-1018 is consistent with and complements both the CZM Act as amended in 1980 and the insurance prohibition of the Reconciliat Act. Further, S-1018 will assist the coastal states in their efforts to manage undeveloped coastal barriers. S-1018 will assist the coastal states in their efforts to manage undeveloped coastal barriers. S-1018 in effect, "cleans up" the federal programs that continue to be at odds with state policies.

The fact that the Reconciliation Act prohibits the issuance of flood insurance policies in undeveloped barriers after 1983 does not obviate the need for S-1018. In fact, the opposite is true.

We applaud Congress for the flood insurance prohibition in the Reconciliation Act. However, in our view, the flood insurance prohibition should become effective at the same time as the other provisions of S-1018. Otherwise, it can be expected that the current rate of 6,000 acres of development per year on coastal barriers will be accelerated to beat the 1983 cutoff date. In addition, the problem

OF STEMMING THE TIDE OF FEDERALLY-SUBSIDIZED COASTAL BARRIER DEVELOPMENT MUST BE ADDRESSED MORE COMPREHENSIVELY AS IN S-1018, RATHER THAN ISOLATING A SINGLE PROGRAM SUCH AS FEDERAL FLOOD INSURANCE.

WE WOULD LIKE TO DISPUTE THE CLAIM THAT A MEASURE SUCH AS S-1018 WOULD PROHIBIT THE PRIVATELY FINANCED DEVELOPMENT OF CERTAIN BARRIERS. IF COASTAL BARRIERS WERE "SAFE" TO DEVELOP, THEN ONE WOULD EXPECT DEVELOPERS TO SHOW LITTLE, IF ANY, CONCERN OVER NOT BEING ELIGIBLE FOR FEDERALLY-SUBSIDIZED PROGRAMS SUCH AS FLOOD INSURANCE. IF THE VARIOUS FEDERAL PROGRAMS ALTER THE FREE MARKET SYSTEM TO MAKE NORMALLY UNFAVORABLE CONDITIONS ECONOMICALLY PROFITABLE, THEN WE WOULD ARGUE THAT TO CORRECT THIS SITUATION S-1018 IS BOTH PROPER AND NECESSARY. WE SUGGEST THAT THOSE WHO OPPOSE S-1018 BE ASKED WHY, IF COASTAL BARRIERS ARE CLAIMED TO BE SAFE, ANY SORT OF FEDERALLY-SUBSIDIZED INSURANCE OR ASSISTANCE IS NEEDED.

FOLLOWING ARE SOME SPECIFIC RECOMMENDATIONS TO STRENGTHEN S-1018:

1. WHILE S-1018 PROHIBITS THE USE OF FEDERAL FUNDS FOR THE CONSTRUCTION OF BRIDGES AND CAUSEWAYS TO ANY UNIT IN THE COASTAL BARRIER SYSTEM IT DOES NOT PROVIDE THE COAST GUARD WITH THE AUTHORITY TO DENY PERMITS FOR PRIVATELY FUNDED BIRDGES. THE MOST DIRECT AND COST EFFECTIVE METHOD TO CONTROL FUTURE FEDERAL EXPENDITURES ON THOSE COASTAL BARRIERS THAT ARE TRUE ISLANDS IS TO DENY FEDERAL PERMITS FOR BRIDGE AND CAUSEWAY CONSTRUCTION. ACCORDINGLY, A SECTION SHOULD BE ADDED TO S-1018 THAT WOULD GIVE THE COAST GUARD THE LEGAL AUTHORITY TO DENY BRIDGE AND CAUSEWAY PERMITS CONSISTENT WITH THE INTENT OF COASTAL BARRIER PROTECTION RATHER THAN WITH NAVIGATIONAL CONCERNS ONLY.

2. The term "financial assistance" should be explicitly defined to include the casualty loss deduction of the Internal Revenue Code for any *new* construction on undeveloped coastal barriers. Without the closing of the casualty loss loophole it is possible that some forms of development such as second home condominiums will remain an attractive investment on the coastal barriers.

3. Section 6(4)(vi) should be amended to read as follows (changes underlined): (vi) The maintenance, replacement, reconstruction, or repair, but not expansion, of *federally* owned or *federally* operated roads, structures of facilities.

4. As noted in the findings section, a coordinated effort among loc state, and federal agencies is necessary to address the critical problem of development on the coastal barrier resources. Consequently, we recommend that Section 8 (Priority of State Law) be clarified to recognize explicitly that all federal permits, licenses and assistance that may be gratned in the coastal barrier system will be subject to the federal consistency provision of the Coastal Zone Management Act. This will provide a means of ensuring that S-1018 compliments and reinforc the states' Coastal Zone Management programs. Further interagency coordination can be achieved in Section 10(2)(b). We commend the provision that directs the Secretary to consult with the Governors of affected states and the public; and would recommend that the Secretary also be directed to consult with the Administrator of the National Oceanic and Atmospheric Administration, Department of Commerce, the Administrator of the

Federal Emergency Management Agency, and other relevant federal agencies. These agencies have a vital interest in and knowledge of coastal barrier resources.

5. In Section 6 (Exceptions) we recommend that the committee consid expanding the provisions to include non-structural hazard mitigation and erosion control measures such as dune revegetatio and other projects authorized by the Coastal Zone Management Act (16 U.S.C. 1451 et. seq.). Such a rpovision would allow for action in rare circumstances when replanting a dune would enhance its natural ability to provide a storm buffer for critic marshland behind the barrier system and for flood protection for communities located on the mainland behind the barrier.

It is our view that S-1018, particularly if the changes we suggest are adopted, is a vital piece of legislation that should be passed as soon as possible. S-1018 makes sense both from the economic and environmental perspectives. In short it represents the best in sound management of a valuable resource. Again thank you for this opportunity to express the collective view of the CZM programs of New England and New York. I would be happy to answer any questions you might have regarding our statement.

Association of State Flood Plain Managers

Statement of
Stanley M. Humphries
On behalf of the
Association of State Flood Plain Managers
Before the
Subcommittee on Environmental Pollution
August 13, 1981

Mr. Chairman, thank you for the opportunity to submit testimony on the "Coastal Barrier Resources Act", S.1018. As co-chairman of the Coastal Issues Committee in the Association of State Flood Plain Managers (ASFPM), I would like to provide enthusiastic support for the bill on behalf of the entire Association. Presently, I am employed as a coastal geomorphologist with the Division of Water Resources, Massachusetts Department of Environmental Management.

The ASFPM is composed of representatives from State Flood Plain Management agencies in the United States. The purpose of the Association is to provide a means of state representation on a national basis regarding policies and activities dealing with flood plain management. Our goal is to encourage and ensure new and innovative approaches to managing the nation's flood plains in order to promote the common interest in flood damage abatement and to enhance cooperation between various related state and federal agencies.

The critical problem addressed by S.1018 is public expenditure directly and indirectly related to the development of high hazard areas. Although the NFIP has been identified as the most obvious contributor, a much larger responsibility can be placed on numerous agencies of the Federal government. A particular type of hazard, floods, and a specific geographic area, the coast, have also been identified. Each of these subjects are central themes concerning the Association. We feel there is an important flood plain management and hazard mitigation objective of this legislation and wish to comment within that context.

Flood Hazards

Floods are the most consistently destructive natural hazards in the United States and there is an upward trend in flood damage, as recently stated by the National Science Foundation in Report on Flood Plain Hazard Mitigation (September 1980). Other natural hazards including tornadoes, earthquakes and mud slides occur less consistently, are far less predictable and difficult to map. In order to narrow the scope of flood hazards per se, one can differentiate between inland (riverine) flooding and coastal flooding. These two environments differ greatly in their physical characterists and economic value.

Changes in the 100-year flood plain boundary and flooding processes comprise a physical difference between inland and coastal areas. Riverine flooding is fairly well understood and predictable. Still water levels rise, banks are overtopped and increased flow velocities are responsible for any erosion. But, the 100-year flood plain boundary remains fairly static over time. River and creek channels may meander and change course quite often but there is less variability in change of the 100-year flood plain boundary. In contrast, coastal flooding along oceanfront areas is not confined to static limits over time. Because of rising sea levels and submergence of land, the coastal 100-year flood plain boundary is moving landward. The flooding process is more dynamic because variable wind directions and speeds, astronomical and meteorological tide variations and nearshore bathymetry effect wave heights and current speeds. A mere rise in still water level is not the case for coastal floods.

The cost of construction and value of property comprise an economical difference between inland and coastal areas. Low cost housing construction and flood proofing are used to avoid flood damages associated with rising water levels in inland areas. Coastal construction, however, must be able to withstand the high forces of winds, currents, waves and tidal surges. The cost of such construction can be high. Property values also differ greatly between these two areas. Insurance premiums per structure in the coastal zone averages twice that in inland areas. The desire for vacation, retirement and second home building along the coast has contributed to the increased value in property. The economical ramification of this inequity between construction costs and property values in the two areas becomes a public problem when disaster assistance is needed. Unless some changes are made, such as those suggested in this legislation, enormous public expenditures are going to increase.

The selection of certain undeveloped barrier islands and beaches is a logical decision based on the fact that these features are exposed to both coastal flooding and high-priced development interests. While it is true that portions of certain barrier islands and beaches may not be exposed to an extreme flooding hazard, the entire ecosystem of an undeveloped barrier is sensitive to expanding development. This interest is appropriately expressed in the "Findings and Purpose" section of the Act as a concern for the protection of fish and wildlife habitats, and resources of scientific, archeological and cultural importance.

Flood Insurance

In all States, the National Flood Insurance Program (NFIP) has been an important unifying element of a total Federal - State -

Local coordinated effort in flood plain management. The ASFPM strongly support the two fundamental goals of the NFIP: (1) reduce flood damage and losses in a cost-effective approach for the Nation as a whole; and, (2) provide fiscal soundness which leads toward eventual elimination of federal subsidy. The provision in S.1018 to deny flood insurance for new construction on undeveloped barriers is consistent with the goals of the NFIP and was, in similar language, incorporated in a set of resolutions (attached) adopted by the Association at our 3rd Annual Meeting in Phoenix, Arizona, this past Spring. Elimination of further federal subsidy is forthcoming through the adoption of wave height regulations in order to implement actuarial rates.

With the denial of federal flood insurance, the responsibility of the State and Local governments for sound flood plain management is squarely established. Any future development on these undeveloped barriers will still be required to meet flood plain zoning and proper construction standards established by the community. The NFIP regulations for the emergency and regular programs continue to be administered for other developed areas.

Legislative history has been made with the passing of the "Omnibus Budget Reconciliation Act of 1981" and the denial of flood insurance for new construction on undeveloped barrier resources is a provision. Language in S.1018 is consistent with that Act, however, the two year delay in the implementation of the insurance provision has serious ramifications and needs to be recinded by the passing of the Resources Act. Rapid and, possibly, unwise development could take place in the two year period which will only increase the cost of future disaster assistance. In addition, Congress needs to know how much growth is actually encouraged by the NFIP in order to establish new policies and directions. This can be accomplished by comparing historic growth patterns on presently developed barriers with future growth patterns on the undeveloped barriers.

Flood Plain Infrastructure

Many public services are eventually needed for any development in any location. Sewers, wastewater treatment, water supply, roads, bridges and causeways are just some examples. In a recent report, Barrier Island Development Near Four National Seashores (April 1981) by Sheafer and Roland, Inc., an inventory of undeveloped, unprotected barrier islands by the National Park Service was used to estimate that the cost to the federal government of funding development infrastructure under current programs could range from $2.46 to $6.06 billion over the next 20 years. This directly translates into added taxes for the entire nation and deserves attention by the present tax-cutting Administration. The "Coastal Barrier Resources Act" provides for a precise limitation on Federal investments.

Executive Order 11988, Floodplain Management, established a national policy "to avoid to the extent possible, the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development whenever there is a practicable alternative". This bill exemplifies the best effort to date to comply with Executive Order 11988 by minimizing unsound Federally supported development in the floodplains of barrier resources and, thereby, minimizing the risk to people and property in those areas. Substantive response and compliance with the Executive Order over the last four years has been disappointing. We feel this legislation codifies the Order's essential policies and will assure its implementation at least in one type of hazard-prone area.

Conclusion

The Association of State Flood Plain Managers support the "Coastal Barrier Resources Act", S.1018, because of its provisions for sound flood plain management. As presently written, it provides a very good compromise for both environmentalist and developer interests. Denial of flood insurance will effect only certain undeveloped and unprotected barriers. Most environmentalists would much rather see the entire NFIP eliminated, whereas, most developers would much rather see insurance available everywhere. The Act is a good first step in addressing a complex land use management problem.

As the role of the Federal government is modified through the provisions of S.1018, the states will have primary responsibility in managing land use of these undeveloped areas. However, the need for an integrated management of the flood plain resources with involvement of local people becomes imperative. We, as State flood plain managers, accept the challenge of increased State responsibility in flood plain management and look forward to the enactment of the "Coastal Barrier Resources Act".

Association of State Flood Plain Managers

April 30, 1981

ASSOCIATION OF STATE FLOOD PLAIN MANAGERS

RESOLUTIONS ON BARRIER ISLANDS AND BEACHES

WHEREAS, barrier islands and beaches have been recognized as inherently unstable landforms, are highly vulnerable to storm-induced changes, and are for the most part unsuitable for human development; and

WHEREAS, the National Flood Insurance Program (NFIP) has contributed to development of barrier islands and beaches, but can discourage development by reducing the scope of coverage and changing its rates for all commercial, industrial and residential development thereon.

NOW, THEREFORE, the Association of State Floodplain Managers (ASFPM) urges FEMA to change NFIP regulations as they relate to the following policies:

1. Actuarial rates should be higher for individuals located in V zones (as mapped in plan view) on developed barrier islands and beaches. Structures should not be treated as being outside the V zone merely because they are elevated above the flood elevation since such structures are still subject to damage from wave action.

2. Insurance coverages should be discontinued for all existing structures on developed barrier islands and beaches if the structure is damaged greater than 50% of its value, unless the structure can be rebuilt in full compliance with the regulations.

3. Insurance coverage should be eliminated for all new structures on undeveloped and unprotected barrier islands and beaches and companion regulations should prohibit new development. Definitions of terms and identification of these barrier islands and beaches made by the Heritage Conservation and Recreation Service are recommended for guidance in the development of regulations.

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE DEPARTMENT
STATE HOUSE • BOSTON 02133

EDWARD J. KING
GOVERNOR

August 13, 1981

STATEMENT OF EDWARD J. KING, GOVERNOR, COMMONWEALTH OF MASSACHUSETTS CONCERNING S. 1018, THE "COASTAL BARRIER RESOURCES ACT".

PRESENTED BY JOHN A. BEWICK,
SECRETARY OF ENVIRONMENTAL AFFAIRS

Senator Chafee and Members of the Committee, it gives me great pleasure to submit testimony on behalf of the Commonwealth of Massachusetts in support of S. 1018, the "Coastal Barrier Resources Act".

Historically, the development of coastal communities in Massachusetts has been closely linked with maritime activities such as shipbuilding, fishing and trade. Today, the economy of our coastal zone continues to grow based in part on the same natural resources that supported the first colonial settlers. However, as more people are attracted to the coast, additional stress will be placed on this finite resource. Barrier beaches are particularly vulnerable to these pressures. Indiscriminate attempts to stabilize and control these dynamic areas have proved futile and have resulted in the loss of lives as well as the wasteful expenditure of millions of tax dollars to repair homes and businesses periodically damaged during coastal storms.

In August, 1980, one year ago this month, I issued the nation's first state Executive Order for Barrier Beaches. The Order (which does not distinguish undeveloped barriers from developed ones) directs all state agencies of the Commonwealth to adopt specific policies to reduce storm damage on our barrier beaches. Of most importance, state funds will not be used to encourage growth and development in hazard prone barrier beach areas. It simply does not make economic sense for either the state or federal government to continue to invest taxpayer's money in areas chronically subject to damage and destruction by coastal storms. In Massachusetts alone, the 1978 Blizzard cost the taxpayers $180 million for coastal damage. Of the 339 homes and businesses destroyed by that one storm, approximately two-thirds were located on barrier beaches.

In Massachusetts we are beginning to curtail public subsidies for precarious development in these high hazard areas. However, our efforts are thwarted by the federal government's continued support of flood insurance, and construction of new or substantially improved roads, bridges, sewer treatment and water supply facilities, and erosion control structures on coastal barriers. The federal government must recognize the burden it places on the taxpayers of the entire nation by providing financial subsidies to a small number of citizens who choose to live on hazard prone barrier beaches. I believe S. 1018 begins to rectify this serious problem.

Some have argued that eliminating federal financial assistance for construction on coastal barriers is unfair simply because it is directed at only one of many natural hazard zones. Unlike other hazard prone areas, barrier beaches are uniquely mobile, dynamic landforms. Composed of unconsolidated sediments, they readily shift, even on a seasonal basis, in response to the ever-present action of wind and waves. In addition, continually rising sea-level ensures that these low-lying coastal lands will remain subject to serious flooding. Further, the very changes resulting from development on barrier systems makes the system even more susceptible to erosion and coastal flooding. This direct link between alterations and increased susceptibility to storm damage does not appear to exist in other natural hazard zones. Barrier beaches clearly warrant special and immediate attention if we are to begin to avoid the costly mistakes of the past.

Some critics have also claimed that including all undeveloped coastal barriers within the jurisdiction of S. 1018 is unfair since the degree of stability of each barrier varies. While coastal barriers do vary in size and configuration, it is generally recognized that the risks of storm damage are inherent to all coastal barriers. Indeed, we must not ignore those features which are common to all coastal barriers. These landforms are the mainland's first line of defense against storms. Barriers take the full force and fury of storm action in protecting landward areas against flooding and wave damage. Consequences to the barrier are tremendous: catastrophic shoreline erosion, sudden relocation of river inlets, breaching and leveling of dunes and inundation of the low-lying segments of the barrier causing isolation of the higher, so-called "safe" areas.

Finally, some have challenged S. 1018 because of its potential impact on future development. The bill does not preclude development. Rather, it places the risks and costs associated with investment with the appropriate parties; the individuals desiring to locate in high hazard coastal areas and not with the general taxpayer.

S. 1018 makes sense both from the economic and environmental perspective. The bill provides the federal government with a mechanism to reduce wasteful spending, especially critical in these times of increasing fiscal restraint.

Before concluding, I would like to offer several recommendations that I believe will strengthen S. 1018 including:

1. the provisions of S. 1018 apply only to undeveloped, unprotected coastal barrier systems. The majority of coastal barriers, however, are developed and will consequently be relegated to the wasteful cycle of destruction and disaster relief/subsidy which presently exists. I request that the Committee give serious consideration to expanding the provisions of S. 1018 to cover developed coastal barriers. At a minimum S. 1018 should prohibit issuance of new flood insurance policies for new construction on developed barriers.

2. Although the enactment of S. 1018 will eliminate flood insurance on undeveloped coastal barriers, damages or losses incurred by the private sector are still reimbursed by federal subsidies

through casualty loss deductions of the IRS code. I suggest that IRS casualty loss deductions for new construction should be clearly identified as being included within the term "financial assistance".

3. At present, Section 6(4)(VI) grants federal assistance for the replacement and reconstruction of any publicly owned or operated road, structure or facility which may be destroyed. It does not seem prudent for federal assistance to be granted for the replacement of roads, strucutres or facilities that are susceptible to damage which will require additional financial assistance at a later date. I suggest that Section 6(4)(VI) should be amended to read:

   VI. The maintenance or repair but not the replacement, reconstruction or expansion of federally owned or federally operated roads, structures, or facilities.

Thank you again for this opportunity to express the views of the Commonwealth of Massachusetts on this important piece of legislation. I look forward to its implementation.

COMMONWEALTH OF MASSACHUSETTS

By His Excellency

EDWARD J. KING
Governor

EXECUTIVE ORDER NO. 181

BARRIER BEACHES

Preamble

A barrier beach is a narrow low-lying strip of land generally consisting of coastal beaches and coastal dunes extending roughly parallel to the trend of the coast. It is separated from the mainland by a narrow body of fresh brackish or saline water or marsh system. It is a fragile buffer that protects landward areas from coastal storm damage and flooding.

The strength of the barrier beach system lies in its dynamic character; its ability to respond to storms by changing to a more stable form. Frequently man induced changes to barrier beaches have decreased the ability of landform to provide storm damage prevention and flood control. Inappropriate development on barrier beaches has resulted in the loss of lives and great economic losses to residents and to local, state and federal governments. The taxpayer, who often cannot gain access to barrier beach areas, must subsidize disaster relief and flood insurance for these high hazard areas.

Since barrier beaches are presently migrating landward in response to rising sea level, future storm damage to development located on the barriers is inevitable.

WHEREAS, the Commonwealth seeks to mitigate future storm damage to its barrier beach areas;

NOW, THEREFORE, I, Edward J. King, Governor of the Commonwealth of Massachusetts, by virtue of the authority vested in me by the Constitution and laws of the Commonwealth, do hereby order and direct all relevant state agencies to adopt the following policies:

1. Barrier beaches shall be given priority status for self-help and other state and federal acquisition programs and this priority status shall be incorporated into the Statewide Outdoor Comprehensive Recreation Plan. The highest priority for disaster assistance funds shall go towards relocating willing sellers from storm damaged barrier beach areas.

2. State funds and federal grants for construction projects shall not be used to encourage growth and development in hazard prone barrier beach areas.

3. For state-owned barrier beach property, management plans shall be prepared which are consistent with state wetland policy and shall be submitted to the Secretary of Environmental Affairs for public review under the provisions of the Massachusetts Environmental Policy Act.

4. At a minimum, no development shall be permitted in the velocity zones or primary dune areas of barrier beaches identified by the Department of Environmental Quality Engineering.

5. Coastal engineering structures shall only be used on barrier beaches to maintain navigation channels at inlets and then only if mechanisms are employed to ensure that downdrift beaches are adequately supplied with sediment.

6. Dredge material of a compatible grain size shall be used for barrier beach nourishment, if economically feasible.

7. The Coastal Zone Management Office shall coordinate state agency management policy for barrier beach areas.

Given at the Executive Chamber in Boston this 8th day of August, in the year of Our Lord one thousand nine hundred and eighty and of the independence of America, two-hundred and five.

Edward J. King
EDWARD J. KING
GOVERNOR
Commonwealth of Massachusetts

Michael Joseph Connolly
Secretary of the Commonwealth

GOD SAVE THE COMMONWEALTH OF MASSACHUSETTS

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Administration
STATEWIDE PLANNING PROGRAM
265 Melrose Street
Providence, Rhode Island 02907

August 13, 1981

Honorable John H. Chafee
United States Senate
5229 Dirksen Building
Washington, DC 20510

Dear Senator Chafee:

I am happy to offer this statement on S.1018, the proposed Coastal Barrier Resources Act. This statement is made on behalf of the Statewide Planning Program, and it expresses for the most part the views of the Office of State Planning, the staff component of the Program. Whenever the adopted positions of the State Planning Council, the policy body of the Program, are presented, they are clearly identified as such.

The proposed Coastal Barrier Resources Act, S.1018, addresses a broad range of direct and indirect federal actions which encourage development of the barrier beaches and islands along the Atlantic and Gulf coasts. The attractions of the coast for seasonal and year-round housing, recreation, and many other activities are obvious. The fragile character of the barrier dunes that extend along much of this coast has only more recently been fully understood, but it is now equally obvious that these areas are not suitable for intensive development or use. The dangers and costs that are the inevitable consequence of abuse of the coastal barriers have been thoroughly documented.

Ian McHarg explored this issue, under the very appropriate heading of "Sea and Survival," in his 1969 book, Design With Nature. He begins by pointing out that society is beset with many problems of inordinate complexity, but that the coastal barriers are not in this category: "Happily, there are other problems, where a very small perception can produce astonishing results." He goes on to demonstrate that these areas cannot tolerate destruction of the fragile vegetation that holds them in place, lowering of groundwater that these plants draw upon, interruption of littoral drift, breaching of the dunes, or pollution of the salt ponds and marshes that are found immediately behind many coastal barriers. Unhappily, McHarg's "simple ecological lessons" have not yet been learned.

Our inability to deal with this straightforward problem and to apply simple solutions is evident all along the coast. The Statewide Planning Program recently reviewed the development that occured between 1970 and 1975 along a portion of the Rhode Island Shore. The area studied extends from Watch Hill to Jerusalem. It includes all of the Westerly shoreline on Block Island Sound, except Napatree Point, all of the Charlestown and South Kingstown shorelines, and a small section of Narragansett. We looked only at the area immediately along the shore, within the "high hazard area."

The survey was made using aerial photographs taken in 1970 and 1975. Despite the fact that much of this area is unsuitable for construction, and that long stretches such as those at Misquamicat, Ninigret, and Matunuck are dedicated to public or private conservation uses, approximately sixty structures were built on the coastal barriers during this five-year period. Many more have been built since 1975. Virtually all are single-family houses for seasonal or year-round occupancy, although there is also an occasional motel or other commercial building.

The Statewide Planning Program is charged with guiding the total development of Rhode Island. The State Guide Plan establishes goals and policies for development and recommends patterns of new growth that allocate ample space to all present and future activities that occupy land, while at the same time accomplishing several other critical objectives, including:

(1) making efficient use of the available land and water resources, producing a coherent, workable, and visually pleasing environment;

(2) sustaining economic growth at a rate adequate to support the state's slowly growing population and more rapidly increasing labor force, in a manner consistent with the state's characteristics, capabilities, and environmental objectives;

(3) controlling urban sprawl and dispersion;

(4) preserving and protecting open space, including recreation and conservation areas, rural and open land, and selected agricultural and forest lands;

(5) revitalizing older central cities as places to live, shop, work, and find cultural resources; and

(6) preserving, developing, and where possible, restoring the resources of the coastal region.

The State Guide Plan also identifies several problems in making decisions about development that must be corrected if these goals are to be achieved. Most importantly, the types and intensities of land use must be related to the diverse inherent characteristics of land, and to the level of public services that are or will be available. This is simply a matter of recognizing that land is not a uniform commodity, but a natural resource of varying capability to support development. Valuable natural features have been identified and must be protected. Open space must be retained to balance urban development.

Given these responsibilities and concerns, the Statewide Planning Program is involved to a significant degree in any federal or federally-assisted activity that encourages inappropriate or unsuitable development in Rhode Island. The Program seeks to achieve its objectives through a variety of means, including:

(1) preparing plans for land use, transportation facilities, public water supply and sewage disposal systems, recreation and conservation areas, air and water quality, strengthening of the economy, and other actions that directly affect physical development and the environment;

(2) implementing these plans through the review procedures established by Office of Management and Budget Circular A-95, review and approval of all proposals by the Rhode Island Port Authority and Economic Development Corporation, review and comment on applications for permits to the Rhode Island Coastal Resources Management Council, cooperation with the Budget Office in preparing the biennial capital improvement program, and other coordination mechanisms;

(3) legislative initiatives for preservation of farm land, protection of groundwater, control of soil erosion and sedimentation, and many others; and

(4) assisting agencies such as the Departments of Economic Development and Environmental Management, the Coastal Resources Management Council, the Solid Waste Management Corporation, the Rhode Island Historical Preservation Commission, and the Narragansett Indian Land Management Corporation in formulating and executing programs and projects in ways that further the objectives of the State Guide Plan.

Senate Bill S.1018 would drastically affect the federal role in fostering the development of coastal barriers in many of the areas of interest to the Statewide Planning Program, as outlined above. I support this proposal, and urge its enactment into law at the earliest possible time, since every day brings more undesirable development of the coastal barrier system. It is particularly important that Section 5 of the Bill be adopted as proposed, since broadly expressed restrictions are needed to deal with this problem. The exceptions provided for in Section 6 appear to include all of those that are essential, and this list should not be lengthened.

A very similar bill, H.R. 3252, has been introduced into the House of Representatives by Mr. Evans of Delaware and others. One provision of S. 1018 is clearly superior to the corresponding language of H.R. 3252, and I urge that the Senate version be adopted. This is Section 4(a)(3) of both bills. The Senate wording would not automatically classify publicly and privately-owned recreation areas as "protected," while the House bill does include this automatic classification. The Senate bill recognizes that recreation areas may be subject to development of concession buildings, parking lots, or other activities which may not be consistent with protection of a coastal barrier system.

The Statewide Planning Program staff has also made a detailed analysis of the maps of unprotected coastal barriers that were sent by the Department of the Interior on July 7, 1981, to Governor Garrahy (and to the governors of all of the coastal states) in connection with S. 1018 and H.R. 3252. We found that the proposed delineation conformed closely to our own interpretation of the stated criteria, but we did recommend the addition or extension of six areas.

One function of the Statewide Planning Program is specifically mentioned in S. 1018. The Program was designated to coordinate Rhode Island's participation in the National Flood Insurance Program by then Governor Frank Licht on February 10, 1970. Section 5(a)(4) of the bill would prohibit sale of flood insurance policies covering new construction or substantial improvement on coastal barriers.

The State Planning Council has been very concerned about this aspect of the National Flood Insurance Program, and began a detailed examination of this situation in December, 1980. The Council has met with the Regional Director of the Insurance and Mitigation Division of the regional office of the Federal Emergency Management Agency, and on May 14, 1981, the Council unanimously resolved to support legislation that would prohibit insurance through the National Flood Insurance Program of new construction or substantial reconstruction on barrier beaches. We appreciate the work of Congressman Fernand J. St. Germain in amending the Omnibus Budget Reconciliation Act of 1981 to include this limitation. I understand that Congress has approved this provision, and that it will go into effect on October 1, 1983. Nevertheless, I encourage inclusion of this prohibition in the Coastal Barrier Resources Act, and urge that it be put into effect even sooner if at all possible.

Of all of the federal programs and actions that encourage or support development of coastal barriers, the National Flood Insurance Program is by far the most important in Rhode Island. As of April 30, 1981, a total of 6,568 flood insurance policies were in effect in 17 coastal cities and towns, including all of these on Block Island and Rhode Island Sounds, and extending up Narragansett Bay to Warwick on the west shore and Barrington on the east. The total amount of insurance coverage was $280,857,900. The vast majority of the flood insurance in these communities is for areas subject to coastal flooding. Very few riverine flood plains are involved. The small community of Charlestown, for example, has 3,066 housing unites (in 1980) and 420 of these are covered by flood insurance. The neighboring town of Westerly has 1,073 policies and a total amount of insurance exceeding $40 million.

The New England River Basins Commission, in 1975, sponsored a study by Crane Miller, a consultant, entitled "The National Flood Insurance Program and Coastal Real Estate Development." This study evaluated the extent to which flood insurance was responsible for development of coastal high hazard areas, using the experience of Westerly, Charlestown, and South Kingstown. One conclusion of this study was that lending institutions had changed their attitudes towards issuing mortgages in coastal flood hazard areas due to the availability of flood insurance. Before flood insurance was available, banks and other potential creditors usually considered the risks in these areas too high. The availability of flood insurance reduced these risks to the point at which mortgages became available, and rapid development of coastal barriers began. A follow-up study by the same consultant in 1977 examined the same issue in sample communities on the Atlantic, Pacific, and Gulf coasts and found that Rhode Island was not typical in this regard. Nevertheless, the availability of flood insurance must be considered a major factor encouraging or permitting the unwise development of the coastal barrier systems of this state.

From a national perspective, the financial implications of flood insurance in coastal high hazard areas becomes significant. The available evidence demonstrates that this part of the program is economically unsound. Claims paid due to coastal flooding and administrative expenses regularly exceed the premiums paid by a ratio of three or four to one. The program is kept solvent by appropriations and by borrowing hundreds of millions of dollars, thereby contributing to both higher interest rates and inflation. Increases in premiums that were put into effect earlier this month will reduce this unwarranted subsidy of unwise development by federal taxpayers, but they will neither eliminate nor justify the considerable deficits that must still be expected.

The National Flood Insurance Program is certainly not the only federal activity that encourages development of coastal barrier islands and beaches. Road and sewer projects, economic development programs, small business loans, and many others are all important contributions. Nor is the federal government the only villain in this piece. The state government has also promoted improper development of these areas through regulations for septic tank installation that did not recognize the problems of coastal flooding, by a total absense of any controls over soil erosion, and especially by inadequate enabling legislation for land management by cities and towns. Local governments have exacerbated the problem by improper zoning, and by installation of utility systems that deliberately support development of coastal barrier systems. Haphazard administration of requirements for coastal zone permits at the state level and of building code provisions at the local level are also important causes of this particular irrational development pattern. The courts have often not recognized the dangers to persons and damage to property that is the inevitable result of occupying coastal barriers, and the burden that falls to the general public as a result. But none of these failures justifies federal actions which promote, or which fail to discourage, construction in any areas that are as unsuitable for development as are the coastal barrier islands and beaches and their adjoining wetlands and water bodies.

For these reasons, I strongly urge the adoption of the Coastal Barrier Resources Act at the earliest possible time. Thank you for the opportunity to present this material.

Yours very truly,

Daniel W. Varin
Chief

DWV:cac

The Audubon Society of Rhode Island
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TESTIMONY OF

THE AUDUBON SOCIETY OF RHODE ISLAND

FOR THE

SENATE SUBCOMMITTEE ON ENVIRONMENTAL POLLUTION HEARINGS

ON

THE COASTAL BARRIER RESOURCES ACT

Rhode Island College, August 13, 1981

My name is Hobson R.A. Calhoun. I am the Assistant Director of The Audubon Society of Rhode Island. The Audubon Society of Rhode Island is pleased to have the opportunity to address the Senate Subcommittee on Environmental Pollution on an important bill such as S-1018, the Coastal Barrier Resources Act.

The Audubon Society of Rhode Island, established in 1897, is the oldest private conservation organization in Rhode Island and presently holds a membership of over 3,600. The Society owns and manages over 40 wildlife and natural areas within a 4,000-acre system of areas throughout the state. Ten full-time staff members carry out the purposes of the Society which include preserving wildlife habitat and unique areas, conducting a broad program of public conservation education, and working for better management of the natural environment for the benefit of man and all other life.

The Audubon Society of Rhode Island would like to offer its strong approval for the intent of the Coastal Barrier Resources Act. The savings to the federal government as a result of the elimination of federal subsidies for new development on undeveloped barrier islands would, we understand, be substantial. A more important concern for an organization such as The Audubon Society is that this bill if passed would serve to encourage the sound management of undeveloped barrier systems in Rhode Island.

Although Rhode Island is only 35 miles at its widest point, it is endowed with almost 30 miles of barrier beaches. Since the last major hurricane in Rhode Island in 1954, a tremendous amount of development of these beaches has taken place- and the rate appears to have accelerated in just the last ten years.

The State of Rhode Island, and indeed many coastal communities, recognize the follies of allowing unplanned development of barrier beaches, including allowing permanent dwellings. The Rhode Island Coastal Resources Management Council mandate results in some control of development on barrier beaches- but not enough. This leaves much of the burden on the towns themselves. Some coastal communities have moved to take firm control of the type and amount of development on their barrier beaches. But towns that have tried to address the problem have not had an easy time of it. In fact, one town that has taken a lead in sound land use planning for their coastal area by passing town ordinances that would prohibit most types of building on high flood danger areas (the Town of South Kingstown) has had these ordinances challenged successfully in court in a case currently under appeal by the town to the Rhode Island Supreme Court. The frustration that concerned towns and citizenry feel from this sort of court challenge is felt in general for the future of the coastal barrier beaches in Rhode Island.

We feel that the passage of a bill such as S-1018 would have positive benefits for Rhode Islanders. First, the federal taxpayer would no longer be helping private interests to pay for bridges, roads, sewer systems, and other construction on undeveloped barrier beaches. Why we were doing this in the first place is still a source of bewilderment to many people and this organization. Second, with this important incentive for development being withdrawn, and the resulting slowing rate of development of barrier systems, Rhode Island and other states will have more time to effectively plan for the uses compatible for these natural systems that not only offer tremendous recreational and aesthetic values, but also serve as natural and self-maintaining barriers between the many times angry sea and the areas behind the barrier islands and beaches, including wildlife resources and homes. We feel that the five million dollars slated to setting up the Coastal Barrier Resources System is insignificant when compared to the hundreds of millions of dollars the government will be saving because of this bill over the next several years.

There are a few concerns that we would like to express at this time. First, according to the present version of the bill, the Coastal Barrier Resource System listing would determine which areas would no longer be eligible to receive new federal subsidies. Of the 30 barrier beaches identified by the 1973 Rhode Island Barrier Beach Study, all except three are two miles in length or less. Most of the areas have at least some development associated with them. There are undeveloped barrier beach sytems in Rhode Island that are much less than a mile in length. We trust that the criteria for selecting barrier beaches for inclusion in the Reserve System would not discriminate against Rhode Island barrier systems.

Second, what mechanism is available for the inclusion of additional areas in the Coastal Barrier Reserve System? Twenty-onehurricanes have struck Rhode Island in the last 200 years. How will this piece of legislation be interpreted after the completion of the Interior Secretary's final report five years from now when a developed barrier beach is brought back to its natural state by the inevitable hurricane or storm? A mechanism is needed for the inclusion of new areas requested by states in the Coastal Barrier Reserve System.

The Audubon Society of Rhode Island would like to thank the Senate Environmental Pollution Subcommittee for the opportunity to testify here today.

Audubon- S1081 (5)

Although the Society sees the inclusion of developed barrier islands and beaches into the Coastal Barrier Reserve System as a logical and desirable extension of this proposed legislation, the Society endorses this piece of legislation. Since there are several outstanding areas where federal cutbacks have severely hampered efforts to protect valuable and unique areas in Rhode Island, the Society is encouraged to see at least one federal cutback we can strongly support and know that until acquisition money is more readily available that at least these natural areas valued by all citizens of our state will be less vulnerable to the haphazard use which has in some instances been encouraged by federal policies. Thank you very much.

Respectfully Submitted,

Hobson RA Calhoun

Hobson R.A. Calhoun

Assistant Director

CLF

TESTIMONY OF KENNETH T. HOFFMAN, ATTORNEY, CONSERVATION LAW FOUNDATION OF NEW ENGLAND, BEFORE THE U.S. SENATE SUBCOMMITTEE ON ENVIRONMENTAL POLLUTION

Thursday, August 13, 1981
Providence, Rhode Island

Senator Chafee and members of the Senate Subcommittee on Environmental Pollution, thank you for the opportunity to appear before you today to testify on the Coastal Barrier Resources Act, S. 1018. My name is Kenneth Hoffman and I am an attorney with the Conservation Law Foundation of New England, known as CLF. CLF is a public interest, environmental law organization with offices in Boston and Hartford which for fifteen years has worked for the protection of New England's natural resources. Currently, one of our three major on-going projects seeks to encourage appropriate land use policies in critical public and private lands throughout New England. One of the focuses of that project is barrier island protection.

CLF agrees with the purposes of Senate 1018 and its House counterpart, H.R. 3252. The pressure for development of coastal barriers in New England is enormous. This pressure must be resisted on account of the environmental consequences and the economic waste that will inevitably follow such development. Whether unsound development is curtailed through outright prohibition or indirectly through termination of federal subsidies is not as important as the result. The method chosen in S. 1018 is a good one; but we would question whether the bill goes far enough.

As the bill stands, there are two major shortcomings that threaten its purposes: the exception for energy resources; and the status of revenue-sharing grants. The energy resource exception is so extensive as to threaten the bill's success in any location where energy can be explored, refined, or even transported. Similarly, if revenue-sharing money can be used for projects where other federal money is prohibited, the subsidy of construction on coastal barriers could well continue.

We would strongly recommend several "toughening" measures, which are listed below. Except where H.R. 3252 is indicated specifically, I have referred to S. 1018 throughout.

Section 2. Findings and Purpose.

Section 2(b), the statement of the purpose of the bill, should include reference to preserving and minimizing damage to the barrier islands themselves, not just to the "fish, wildlife and other natural resources associated with the coastal barriers." As Section 3(1)(A)(iii) recognizes, barrier islands serve an important function in protecting "landward aquatic habitats from direct wave attack . . . ." Section 2(b) should add another stated purpose for the bill, by inserting after "it is the purpose of this Act to minimize the damage to", the barrier islands themselves and.

Section 3. Definitions.

Revenue-sharing grants may have a significant influence on the future of barrier islands. The language of Section 3(3) includes as "financial assistance", "any other form of direct or indirect Federal assistance." This language does suggest that revenue-sharing grants are within the definition; but it would be better to make the issue explicit by including general or special revenue-sharing grants in the definition of "financial assistance." H.R. 3252, the companion bill, specifically exempts in Section 3(3)(A) revenue-sharing grants from its definition of "financial assistance"; the House bill is the weaker for this exception.

Section 5. Limitations on Federal Expenditures Affecting the System.

Section 5(a)(3) prohibits new expenditures for projects to prevent erosion of inlets or shorelines "except in cases where an emergency threatens life and property on lands and water immediately adjacent to that unit." It would be tempting for a court to interpret the exception to allow a threat to life and property not only in an area adjacent to the unit, but actually on the unit as well. Could the language be clarified by allowing new expenditures on or adjacent to lands and water of a unit; but limit the expenditures to cases where an emergency threatens life, only? This change would prohibit emergency measures to save property alone, without prohibiting life-saving operations.

Section 6. Exceptions.

The Sub-section 6(a)(1) exception for energy resources is terribly damaging. H.R. 3252, at Section 5(b)(1)(A) at least conditions this exception on necessity. We would urge that the exception be stricken. Failing that, we suggest substituting language to allow solely energy transportation through water areas adjacent to units of the system, but prohibiting use of any land in the system for energy resources extraction, transshipment, or any associated activity.

Sub-section 6(a)(3) allows "military activities essential to national security." Are armed forces training on barriers to be considered essential? Such training has caused terrestrial damage on the Maine coast and on Cape Cod; more recently, low-level Air National Guard flights in the White Mountains of New Hampshire have elicited considerable protest. If there is no existing policy on this question, it would further the purposes of the bill to prohibit training exercises in the Coastal Resources System.

The function of Sub-section 6(a)(4) is terribly difficult to follow. The sub-section appears in Section 6, the exceptions to the prohibition of new expenditures. Sub-section 6(b)(4)(i through vi) are therefore exceptions to exceptions; i.e., they are projects allowed to receive funds if consistent with the purposes of the Act. What is meant is that Sub-sections 6(a)(4)(i through vi) are narrower exceptions than Sub-section 6(a)(1 through 3). Clarifying this construction would make interpretation much easier.

Section 9. Separability.

There was no separability provision in H.R. 3252. The final bill should contain a separability clause.

Technical Change: Section 4(a)(1).

Insert April 1981 after "and dated" to conform S. 1018 to H.R. 3252, Section 4(a)(1).

We are deeply appreciative of the efforts undertaken by Senator Chafee in introducing the Coastal Barrier Resources Act. While the language of the bill is not as strong as we would have wished, we recognize the inevitability of compromise in the political process. We hope that the bill, with our recommended changes, will make a significant contribution to protection of a resource which, once lost, cannot be recovered.

Thank you for this opportunity to offer testimony on S. 1018.

CLF OF RI

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Statement of Mark Reeve, Conservation Law Foundation of Rhode Island, Before the Senate Subcommittee on Environmental Pollution Regional Hearing, August 13, 1981

My name is Mark Reeve and I work for CLF/RI. The views I express today were adopted at the last meeting of the Board of Directors of that organization. Thank you for this opportunity to comment on Senate Bill 1018.

We applaud the introduction of Senate Bill 1018 and wish it success. It is a very important first step for the federal government in recognizing the enormous value of barrier islands as a national resource. Quite importantly, it proposes not to spend, but instead to save, money. The $1 million it authorizes annually will be far outweighed by the savings, estimated at well over $100 million a year, from other federal programs.

We could talk at length about the uniqueness of barrier islands and the foolishness of their development. But my purpose here today is not to put you to sleep. The ideas and information we exchange ought to be useful, and in this spirit, we will make several recommendations. Please do not take our recommendations as criticisms; the over-riding reason for our testimony today is to show support for this bill.

CLF/RI realizes also that some of our suggestions may go beyond the initial intent of the bill. However, we feel that consideration or discussion of them is important to those, including yourself, Senator, who understand the value of our barrier beaches.

To begin with, we would like to go on record as supporting the immediate implementation of S. 1018. Any delay, whether of two years

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or even more, will cost the nation a great deal of money and a part of an unspoiled natural resource.

We also ask for clarification on an issue that may well come up. Specifically, will new federal insurance policies be issued after repair or reconstruction of present structures on undeveloped islands? In any case, we recommend that such future policies not be issued.

We are also concerned about barrier islands not on your list. In some cases, islands are partially or sparsely developed, and with minor changes in this law, could be treated by the Federal Government in the same way as the undeveloped islands now on the list. In cases of denser development, we also recommend that no federal insurance money be spent for new building and that no federal money be spent for new facilities and services such as roads, bridges, and sewers.

What we are saying is that the great value of barrier beaches in both a recreational and environmental sense is certainly not entirely negated by the existence of housing. Although we feel that by and large barrier islands should not be considered as suitable residential areas because of their instability, fragility, and natural beauty, we realize that buildings exist on them. Developed islands often pose even higher storm-damage risks to homeowners than do undeveloped islands. Taxpayers' money should not continue to underwrite these risks.

Therefore we recommend that presently 'developed' barrier islands also be barred from federally-induced development. It would be a shame if this excellent bill, S. 1018, had the effect of spurring on higher density development on islands not on your list. It seems that building on developed islands will be less risky because of continued federal insurance money. Given continued demand for ocean-front property, the incentive for development of 'developed' islands will remain and increase. The result will be a continued, and perhaps even greater, cost to taxpayers for insurance coverage, disaster relief, and high-cost services. It appears to us that the provision of section 10(d-1), which allows for recommended changes in the system by the Secretary of the Interior, will not in itself be adequate to adress this recommendation of ours.

One reason we mention further development is because on page three of S. 1018 you say, "During our hearings...we will ask if the environmental quality of the barrier areas is being protected through the permit process." We have one area of serious concern to bring to your attention. Preliminary indications of a current Coastal Resources Center study are that some of the state's salt ponds and barrier marshes are experiencing eutrophication due to the release of nitrogen-rich sewage from individual sewage syatems. Eutrophication can devastate the plentiful and important plant and animal life in these ponds which in turn affects coastal wildlife. The value of healthy salt ponds to the coastal environment cannot be emphasized enough. While we hope that stricter state permitting proceedures may adress the problem of sewage discharge, we also think it deserves greater consideration on a federal level. The present use of federal money on barrier islands has already created a kind of federal policy. S. 1018, which adresses only undeveloped barrier islands, should be complemented with a bill concerning federal practices and policy on developed islands as well.

Another recommendation we have is that section 6(a-1) of your bill which deals with energy facility exemptions, be amended. As it stands, it appears to sanction energy-related federal spending on undeveloped islands.

As the recent case of oil-drilling permits in California suggests, the plans of federal agencies must be consistent with federally-approved state coastal management plans. Rhode Island's CRMC's Policies and Regulations states that, "Construction on and/or alteration of undeveloped barrier beaches shall be prohibited except where related to a Council approved beach or dune stabilization or restoration project, public access, sanitary or recreational facility or where a temporary alteration is demonstrated necessary to promote or protect the public welfare and then only when no significant damage to the coastal environment will result." (p.12)

According to the Office of Federal Insurance Administration, many other states do not have such regulations. Section 6(a-1), we think, will not encourage them to adopt stricter policies. Although procuring energy is important, we question the broad exemption section 6(a-1) gives it on undeveloped barrier beaches. In general, energy exploration, development, and production would cause a greater risk to what you term "an essential habitat for fish and wildlife." We recommend that 6(a-1) be amended to include scrutiny of energy projects by the public and public interest groups, state agencies, and NEPA. The number of such proposed projects should be low enough so as not to put a strain on the agencies involved. Conservationists, and much of the public, would rest a bit easier if such an amendment were made.

We would also like to mention our views about the process by which the resource system was designated and will be amended. We have learned that state agencies were asked for comments on the system, but CLF/RI and other public groups were not. This is not a case of sour grapes or of distrust of government agencies; we simply feel that the public and public groups can and should be informed and contribute to the designation process. One question we might raise would be the inclusion of smaller beaches on the original list. It appears that some of Rhose Island's small undeveloped beaches such as Bonnet Shores Barrier, Mackerel Cove Barrier, and Almy Pond Barrier are not on the list. The process of original designation ought to also apply to the additions or deletions recommended by the Secretary of the Interior under section 10.

This brings us to our final point. Due to the admitted transitory or unstable nature of barrier beaches, a five year limit for changes is not enough. The unconsolidated material that makes up barrier islands will continue to move after 1986. A long-term proceedure ought to be set up in this bill to keep pace with the work of wind and waves. The beach grass itself survives because it grows and adapts; we think the wisdom of this bill will lie in emulating this vital plant. America's natural barrier islands are certainly worth all our efforts to preserve them wisely. Thank you.

STATEMENT OF DANA C. ROWAN
COASTAL CHAIRMAN, NEW ENGLAND CHAPTER OF SIERRA CLUB
BEFORE A FIELD HEARING SPONSORED BY SENATOR JOHN CHAFEE
PROVIDENCE, RHODE ISLAND
AUGUST 13, 1981

My name is Dana Rowan and I am the Coastal Chairman of the New England Chapter of the Sierra Club. I am also a member of the Sierra Club's National Coastal Committee which helps formulate national Club policy on coastal resources and coordinates conservation work on coastal projects. First, I am pleased to state that the Chapter supports the Coastal Barrier Resources Act (S-1018) as a positive step toward removing wasteful government subsidy of inappropriate coastal development. In addition, the bill is consistent with elements of the Sierra Club's recently adopted interim policy on barrier islands. Specifically, the national Club advocates that the federal government redirect federal activities away from barrier islands and high hazard areas and that the federal government cut off federal subsidy programs to new development on undeveloped barrier islands or undeveloped portions of barrier islands. By subsidy, we mean federal assistance for bridges, highway construction, coastal dredging, shoreline protection, flood insurance, wastewater treatment facilities, small business loans, economic development grants, and home mortgage insurance. We are pleased that S-1018 is consistent with these objectives.

While reflecting on the coastal legislation of the past decade, it is suprising that federal programs still encourage people to build and settle on barrier islands. We find it ironic that some states which under the Coastal Zone Management Act of 1972 succeeded in establishing coastal boundaries as far inland as 25 miles, failed to establish policies to adequately protect their barrier islands which are right at the water's edge. The states are not solely at fault, however, as I have been personally told by at least three state coastal program managers in the northeast that federal subsidies in the form of flood insurance, SBA loans, Army Corps coastal projects and Farmers Home Administration loans have repeatedly frustrated their efforts to get a handle on barrier island protection. This leads me to several conclusions:

1. The existing array of federal subsidy programs for barrier island development conflicts with the protection objectives of the Coastal Zone Management Act and undermines the effectiveness of the act's consistency provisions. The development pressures on our existing undeveloped barrier islands and the storm-generated property damage and human suffering are so great that it is extremenly difficult for a governor or state coastal program manager to restrain municipalities and individuals from seeking federal aid, especially when it is so accessible. The Congress went on record as recently as 1980 in the CZM Improvement Act, that it is in the national interest to protect barrier islands and to manage the coast so as to minimize the loss of life and property from improper development and destruction of natural features. Given this declaration of public policy by Congress, it is incumbent on Congress to be sure that its own expenditures work to favor declared national policies.
2. Federal subsidies for the development of undeveloped barrier islands are costly and an unfair burden on taxpayers. Here are a few items to illustrate our point:
   - According to the National Hurricane Center and the U.S. Department of Commerce, all three of the costliest

hurricanes (Frederick, 1979; Agnes, 1972; and Camille, 1969) in U. S. history, totalling almost $6 billion in damage, occurred within the past 12 years.

- In the wake of hurricane Frederick, the Federal Emergency Management Agency spent $52 million on tiny Daughin Island (Gulf of Mexico) for disaster loans. The Federal Highway Administration plans to spend up to $50 million to build a new causeway, which translates into $20,000 per inhabitant.
- $37 million in Federal Highway Administration funds were spent during 1976-1978 to subsidize the development of barrier islands.
- During fiscal years 1975 to 1977, the government committed over $500 million to develop barrier islands.
- The estimated federal cost to develop only 50% of the remaining undeveloped barrier islands ranges from $4 billion to $11 billion over the next 20 years. (Please remember that the development costs just cited do not include the cost of replacing any of the development that is destroyed by storms during that period.)
- In light of the recent cuts to food stamps, social security, education and mass transit, the 3% loans for rebuilding beach houses sound more like a luxury the country can not afford than a real necessity.

3. S-1018 is consistent with the Reagan administration's desire to strengthen states' rights. Once the federal government is removed from the subsidy role, states and municipalities will have the lead role in determining and supporting what they believe is appropriate development for barrier islands. Many states have already articulated their policies in state coastal zone management programs.

4. Federal susidies do, in fact, induce development of barrier

islands. It is hard to believe that as recently as 1978, the Department of Housing and Urban Development still denied that the Federal Flood Insurance program induced coastal development in flood hazard areas. Today with mortgage rates soaring to 17%, the 3% SBA loans are not only relief, but a generous windfall. It is hard to believe that the government chose to cut 7% loans to students, yet still permit homeowners who have just lost their house to go out and build another one with 3% federal money in precisely the same hazardous location.

5. Coastal barrier islands face unique problems and warrant special attention under federal legislation. Some members of Congress claim that barrier island hazards are no different than other natural hazards (e.g. tornados, earthquakes, volcanic eruptions). This simply is not true. Five factors distinguish barrier islands as areas particularly in need of federal legislation:

   A. Development pressures along the coast are very intense. Everyone wants to live on the water. Look at New Jersey, Maryland and Florida which not only have developed barrier islands, but have booming cities on them. It is estimated that by 1990, 75 percent of the U.S. population will live in coastal counties alone, not to mention a day's drive from the coast. Such pressures for growth create a swelling demand for federal subsidies and represent a growing waste of our tax dollars.

   B. The coastal hazard zone is well defined. A beachfront home that is directly exposed to the ocean with no natural protection has a limited lifetime. Both scientific research and historic records document the recurrence of major storms. There is almost no stretch of exposed Atlantic or Gulf shorefront that has not experienced the furry of a hurricane or major northeaster during the past 50 years.

C. Development of barrier islands actually increases the hazard potential. People typically build too close to the ocean and then expect the federal government to bail them out by building costly shore protection structures. Even in Miami where the Army Corps chose less expensive non-structural beach nourishment over costly seawalls and groins, the project ended up costing $65 million for 10.5 miles of protection. Once the pattern of federal assistance is established it is difficult to stop.

D. Barrier islands are expensive to develop. Most developers need the generous subsidies of the federal government to make barrier island development economically feasible. Barrier islands require bridges and causeways for convenient access and they tend to be expensive. Island water supplies are generally quite limited and septic systems built in porous sand typically malfunction as development densities rise. Once again solutions to these problems usually require the generous support of the federal government. In fact, federal studies have shown that sewer construction on barrier islands commonly costs two to three times that of the mainland.

E. Barrier islands in their natural state provide effective protection of other valuable coastal resources, such as wetlands, highly productive estuaries, and upland habitat. The need for protecting these natural areas has been well articulated in other federal coastal law. Removing federal subsidy for development is one of the most cost-effective ways to protect these coastal resources.

In closing, wewould like to emphasize a very sobering thought. Prior to 1980, "The Year of the Coast," few of us knew much about the population charcteristics of developed barrier islands. So, the Conservation Foundation that year conducted extensive demographic research and found that less than 20 percent of the people residing on our nation's barrier islands have ever experienced a coastal hurricane or severe winter storm. And we should add that the northeast has been unusually quiet over the past 20 years. Consequently, most of the public have only a limited grasp of the terrifying force of a major coastal storm. I hope that with the fine leadership of Senator Chafee and other members of Congress that we can pass this bill in advance of a major storm, rather than in grievous response to one.

STATEMENT OF PAUL J. GODFREY, ASSOCIATE PROFESSOR
DEPARTMENT OF BOTANY
UNIVERSITY OF MASSACHUSETTS, AMHERST
REGARDING SENATE BILL S1018

Mr. Chairman:

I have been asked to present a short statement dealing with barrier islands and their problems, and to point out why the scientific community is concerned about federal involvement in promoting and subsidizing the development of these hazardous coastal features which Senate Bill S1018 is considering. I am a part-time member of the National Park Service Scientific Staff and have served on the USDI Barrier Island Study Group, as well as being an associate professor at the University of Massachusetts, where I teach coastal ecology. I also have taught courses on barrier islands at Duke University Marine Laboratory in Beaufort, NC. The views I will discuss here are backed by a dozen years of personal research on barrier islands and are part of a growing concensus among scientists relating to how barrier islands work, and the costs of human interference with natural processes in terms of life and property losses, and tax dollars.

Barrier islands and beaches are very different from the adjacent mainland, even though they have been treated in recent years as if they were the same. Barrier beaches are dynamic, migrating landforms only a few feet above sea level, shaped and changed by the sea and wind, which keep them in a state of constant flux. When storm waves reach man-made structures on the beach, disaster usually results, as happened recently during the Great Blizzard of 1978 at Scituate, and time and again elsewhere along the coast.

The massive and ongoing development that has occurred in recent years on barrier islands and beaches has led to increasing hazards, accompanied by massive outlays of tax dollars following the predictable destruction wrought by hurricanes and winter storms. For example, the Blizzard of 1978 caused over $1 billion of damage in eastern Massachusetts, and the money provided by the federal government for disaster relief and reconstruction was the greatest ever at that time. The next year Hurricane David, which took 1,200 lives and caused $1.5 billion in the Caribbean, caused $500 million damage in the U.S., over $60 million in Florida alone, and claimed 19 lives.

Hurricane Fred ripped into the Gulf Coast of Alabama in 1979 and caused $2 billion in damage, wiping out summer homes, destroying a bridge, and cutting Dauphin Island in two places. Federal payments for Fred have amounted to $456 million in disaster relief, followed by $38 million for a new bridge to Dauphin Island, and $3.5 to 5 million for new sewers. Mr. Crane Miller has calculated that the federal subsidy of the bridge alone amounts to $50,000 per house on Dauphin Island.

In 1980, Hurricane Allen provided spectacular satellite photographs, as it nearly filled the Gulf of Mexico, after causing 200 deaths in the Caribbean. It was a massive category 5 storm then, but dropped to category 3, as it reached Texas. Texas was lucky; the storm overwashed Padre Island, which is mostly an undeveloped National Seashore. Even so, the cost to Texas was $600 million. Between 1976 and 1978, the Corps of Engineers spent $33.5 million for barrier island stabilization projects. Who can guess what the next major hurricane will do or where it will go or what it will cost this country in lives and property?

Why all this expense? What is wrong with building on barrier islands and beaches? The beautiful vistas that greet people when they arrive at the seashore have enticed them to move there permanently, and to try to convert the highly dynamic islands into the unmoving structures of human settlements. When the ocean once again asserts its power on the barriers, disaster results. Through scientific research, we have been able to describe how barrier islands work as natural buffers against the awesome power of oceanic storms, and what happens when humans try to live on them permanently.

There are several important forces affecting the coastline; one of the most important is sea level rise. Since the last ice age, 15,000 years ago, the ocean has been slowly submerging the continental margin, at a rate of about 1 foot per century along most of the eastern and Gulf Coasts. There is ample evidence for the continuing rise--stumps found on ocean beaches prove to be less than 200 years old; trees that were alive in the early part of this century now stand as snags in newly formed intertidal salt marshes. Docks have even been submerged during the lifetime of coastal residents. The rising sea pushes the shoreline back and can create islands from what was once contiguous land.

The other major force is the powerful oceanic storms that have always been a part of the coastal environment. All portions of the U.S. east and Gulf coasts are affected by them, to a greater or lesser degree. Eastern Texas, the Mississippi Delta, eastern Florida, the Outer Banks of North Carolina, and New England are particularly susceptible to hurricanes. The northeastern states, North Carolina to Maine, are also especially vulnerable to massive, hurricane-like, winter storms. Periods of storm quiet tend to lull people into believing that the shorelines are safe for homesites. A respite from hurricanes on the East Coast during the last decade or so has led to the greatest development of barriers ever in the history of the country, but no person knowledgeable about coastal environments expects this lull to continue. If past events are any guide to the future, there are bound to be disasters of unimaginable proportions in the years to come.

Waves generated by coastal storms dissipate their energy on the beaches, resulting in sand movement up and down the shore, as well as back across the beach. The very name "barrier beach" implies that these landforms are protecting regions behind from the direct onslaught of the ocean storm. Understanding how barrier islands work can result in huge savings to the taxpayer. For example, the newly created Cape Lookout National Seashore in N.C. was thought to be in immediate danger of "washing away", because most of the islands in the area are low and frequently flooded by storm tides. A proposal had been made to spend over $15 million in 1962 to dredge the bay behind these islands and pump sand on the beach. A few thousand dollars was spent by the National Park Service to support research in that Seashore, and it was found that the islands were well adapted to the coastal environment and were not washing away; rather, they were moving around in response to oceanic forces. To have spent $15 million of the taxpayers' money trying to stabilize these islands would have been a colossal waste. The costs for maintaining this splendid National Seashore are very low, and the islands need only to be protected from human disturbance, not from the sea. I might add that the

National Park Service has been the leading governmental agency in supporting barrier island research and implementing the findings in management of its National Seashores, with implications for all similar barriers. A small amount of support for research has provided great savings of tax payers' dollars. The overall results have been to show that natural barrier islands and beaches are adapted to the forces of the sea, and will cost the country nothing if they are left alone.

There are various types of barrier islands and beaches along the East and Gulf Coasts, all of which share similar histories and coastal processes. We have been able to classify these barriers in terms of structure and shape, and have been able to determine which types are most susceptible to flooding and erosion. Barrier spits are structures attached by one end to the mainland or a large island, and formed as waves move sand from the larger landmass out into the sea. Bay barriers are similar, but have both ends attached to sources of sand and so create a pond behind. Barrier islands are separated from each other by inlets, which may be temporary or permanent. Spits and bay barriers are common in the northeast, while islands are most common in the southeast and Gulf Coast.

Barrier islands and beaches range from relatively stable, high landmasses - some of which are actually sections of the mainland isolated as islands by the rising sea - to very unstable, rapidly migrating, low-lying lands vulnerable to every storm tide. Obviously, such differences in structure lead to varying degrees of storm hazard, yet these differences have been largely ignored in recent development programs. Some of the most massive building projects have been on the most hazardous barriers.

There are three basic ways that sand is moved along the barriers by water: littoral drift, overwash, and inlet tidal currents. In addition, wind picks up sand from all open areas and moves it into dunes. All four transport mechanisms build and change the shape of barrier beaches in response to the oceanic forces of sea level rise and storms.

Littoral drift results in sand being moved along the beach in the general direction of wave approach. This causes beaches to move, and leads to the growth of spits into open water. Littoral drift can best be seen when groins or jetties are placed in the path of the moving sand for stabilization purposes. These stop sand from moving along the beach and cause a pile-up on the updrift side of the structure. Waves continue striking the beach downdrift from the groin or jetty, yet there is no sand moving into place. The result is a highly predictable washing away of the downdrift beach, making it necessary to pump sand around the obstructions at great expense to the taxpayer. Examples of such problems abound: the south shore of Long Island, the New Jersey Coast, and a recent problem at Cape Hatteras National Seashore graphically illustrate what happens when the littoral drift is interrupted. A sequence of photographs taken from the lighthouse at Cape Hatteras show how fast downdrift erosion resulting from groins can destroy the land. Groins were built just north of the lighthouse in 1971, before which time the shoreline was relatively straight. By 1979, massive erosion south of the lighthouse had destroyed a huge section of the Cape Hatteras shoreline, resulting in a severely indented beach line. The erosion continues and is now threatening the loss of seashore facilities that would have been safe for a long time had not the groins been built. While slowing erosion on one part of the beach, groins and jetties invariably create greater erosion problems elsewhere. To remedy such problems requires huge outlays of the taxpayers' dollars.

Overwash is the process which moves sand back across a barrier beach during major storms. It happens whenever storm surges break through the dunes and move over the island. Sand is moved from front to back, where it is then stabilized by vegetation or blown up into dunes. Overwash is the major process by which a barrier migrates landward in the face of rising sea level. On natural barriers, overwash is not a problem because the ecosystems there are well adapted to such events and recover in as little as a year. Coastal grasses either grow up through the new sand layers or germinate on top; in either case, all visible signs of flooding are soon erased. Overwash also adds sediment to the elevation of the island, providing the means by which low lying areas behind the beach are built up. Even the severe effects of a major storm like the Blizzard of 1978 are being rapidly healed where natural beaches were overwashed, and at no cost to the government. Such is the case at Nauset Beach on Cape Cod, where the storm leveled dunes and severely overwashed the spit, much to the consternation of many people. However, research there has shown natural and continuing recovery of vegetation with new dunes forming landward of the older, now eroding dune line. The NPS has adapted to barrier migration by encouraging dunes on the back side, not interfering with natural processes, and placing expensive facilities on high ground away from the beach. Recently completed research by Dr. Robert Zaremba has shown that overwash-dune building cycles on Nauset Beach have happened many times and that regrowth of dunes can occur within a decade after an overwash.

By contrast, overwash on developed beaches can be disastrous. Sea walls are usually built to stop wave action, but they fail with considerable regularity, especially when waves remove all the sand in front of the wall and the sides are breached. Buildings built too close to the beach are soon subject to undermining by waves, as is happening at Ocean City, Maryland. When water surges over the beach, anything in the way is demolished, as happened in Scituate during the 1978 storm. Massive layers of overwash sediment, this time mostly rock, were deposited on the back-barrier areas, as would be expected. The land was actually built up by several feet. However the newly raised land was promptly bulldozed away, and returned to its former level to await the next overwash burial. Massive overwashing has occurred many times before on our northeastern coast. The enormous power of the 1938 hurricane has been largely forgotten, but it caused tremendous damage to southern New England and Long Island where whole towns on barrier beaches were wiped clean. Graphic before and after photographs show the effects of that storm on the Rhode Island shore. While destroying many buildings, the storm moved sand from ocean to bay side, and provided a new substrate for the development of barrier ecosystems. These ecosystems exist to this day, and the barriers still carry on their function as they did before the storm. Fortunately, some areas wiped out in 1938 and in more recent storms are now protected as state parks, and will continue to operate as natural beaches, and of course, be open to public recreation.

As with erosion caused by groins and jetties, the solution to overwash has been construction of new dune-dikes, or artificial beach fill, once again at great cost to the taxpayer. The major overwash that occurred in Buxton, N.C. in the 1930s was later remedied by building dune lines; then followed construction of homes, motels and government buildings. The shoreline retreated, and in 1973, overwashed again during a winter storm. The beach moved back, with thick layers of sand being spread on the back side of the barrier, covering the road by upwards of four feet. Once again, bulldozers were used to push the sand away, and lower the surface to the original level. In addition, a major beach nourishment project was undertaken, at taxpayers' expense, to pump sand from a recreational beach on Cape Hatteras to a short section in front of remaining buildings. This operation cost nearly $2 million in 1973. By 1979, the beach was nearly back to its position prior to the 1973 overwash and likely to overwash once again.

Finally, we have the inlets that cut through barrier islands and provide access to the bays, lagoons, and harbors behind. Inlets are an integral part of the coastal environment and provide the means by which river flow from the land reaches the sea, and the myriad of marine and estuarine organisms that inhabit the coastal oceanic zone move back and forth from spawning or nursery grounds to open ocean. Upwards of 80 % or more of the coastal fisheries depend on the migration of organisms through inlets. Inlets, particularly temporary ones, provide another means by which barrier islands move back in the face of rising sea level. An inlet opens where a barrier is narrow, and in a few decades may close. As it closes, huge shoals build up behind the opening and these become new salt marshes once the inlet closes. The marshes are a major source of organic materials for the lagoon ecosystem and also provide a base onto which the barrier can retreat. The opening and closing of inlets is a very common occurrence along the eastern and Gulf coasts, and old inlet sites can be located by the characteristic deltaic patterns of salt marshes behind the barrier.

But inlets also provide the means by which shipping and recreational boating reach safe harbors along much of the eastern coastline. Because sand also moves into the inlets, and most have the tendency to shift position or close, modern engineering practices have been used to "stabilize" them. This involves dredging, and increasingly the use of jetties. But, once jetties are placed at the inlet site, sand piles up on the updrift side of the inlet, and erodes away from the downdrift side. Again, examples abound, one of the most dramatic being at Ocean City, Maryland. Ocean City inlet opened in the thirties, and was soon jettied. The shoreline shape changed rapidly so that now the beach extends far out to the tip of the jetty on the north side, where it must be dredged away or the jetty extended, while on the south side - a National Seashore - massive erosion has cut away the land, and caused excessive overwashing and storm breakthroughs. The jetty must be lengthened on the back side, and channels constantly dredged because of excessive sand transport over the island. The jetties caused abnormal beach growth on one side, and massive erosion on the other side. In effect, there, jetties have resulted in a "washing away" of the northern part of Assateague Island. A current $92 million proposal to jetty Oregon

Inlet in North Carolina, another temporary, migrating inlet, will undoubtedly lead to the same effect. Once again, taxpayers' money is being proposed to build structures that will wreak havoc on the shore line, and lead to increasing public expenditures to maintain what will be built (nearly $10 million every year).

And there is plenty of precedent for such folly. Moriches Inlet on the south shore of Long Island had the typical configuration of a jettied inlet. In 1980, a winter storm created a new opening just east of the jetty. Even though nothing was directly threatened by this new opening, which would have filled in on its own, $11 million of public funds were spent to fill that opening. Even while the filling operation was underway, $200,000 worth of sand washed away during a storm.

The taxpayers have even supported the creation of new inlets which probably would have developed anyway. Such was the case at New Drum Inlet in North Carolina, which was dredged and blasted open in 1972. It too is closing, and only continuous dredging can maintain boat channels. The question is -- how long can the taxpayers continue to support such questionable operations in the face of rapidly increasing costs since dredging and jetty construction require expensive petroleum to operate the huge machine necessary to keep the channel open. Inlet management will always be necessary at certain key ports where commerce and national security are at stake. As costs rise, these critical harbors will be increasingly difficult to maintain and will begin to put a severe strain on future budgets. It makes no sense to waste public funds on marginal projects where the benefits are highly dubious and largely the result of paper exercises anyway, particularly when we know how oceanic forces will affect the project. I would personally put the Oregon Inlet jetties in that category.

Knowing what we do about barrier islands and beaches, the scientific community is very apprehensive about the scale of future disasters. We know they will come, but we do not know where. Perhaps the next major hurricane will hit the south shore of Long Island, like the 1938 hurricane which took a total of 600 lives, or Stone Harbor and Atlantic City, N. J., which were devastated by the 1962 Ash Wednesday storm. Or Ocean City, Maryland, also swept by the 1962 storm, where modern, high rise condominiums subsidized by federal dollars as proudly advertised on billboards, are being built on a rapidly retreating shoreline. Or Bogue Banks, N. C., once blessed with high, stable dunes, now being flattened for more trailer parks, and boat channels. Or Wrightsville Beach, N. C., where fill is constantly being placed in front of a large hotel built in 1973 on a washover beach, and now accompanied by a new condo whose sea wall is wave-washed by normal high tides. Or the Florida coast, where new condos are rising at a rapid rate and which is subject to numerous hurricanes; or the Gulf coast, devastated by Hurricanes Camille and Fred; or north Padre Island, Texas, barely escaping Hurricane Allen, where new condominiums are being built at the high tide line on overwash sites. Or new homes on an eroding beach where layers of peat are exposed at low tide, and boat channels cut through the barrier create even more unstable and hazardous conditions than existed before development. Or Galveston, a barrier island city that is totally dependent on a government-funded sea wall, and a city that was nearly obliterated with the loss of 6000 lives in the 1900 hurricane.

Mr. Chairman, we believe that it is not in the best interests of this Country and its taxpayers to continue subsidizing new disasters in the making as we have already done at Ocean City, Atlantic City, Galveston, and many other cities and towns on barrier islands. The cost will be staggering just dealing with those that now exist. Knowing what we know about barrier islands and the nature of the coastline, we can only wait with horror for the next huge storm to hit the shore. To continue supporting the development of barrier islands and beaches is folly, a colossal waste of dollars and a threat to human lives. The government will be creating new hazard areas and will have to bear part of the responsibility when the inevitable happens. We believe that the Country simply can no longer afford to support development of barrier islands and therefore, I support your Bill as an important first step toward that goal.

I would be glad to provide the Committee with any further research reports, photographs, or other documentation that might help in the progress of the Bill. Thank you.

Ecology Action
For Rhode Island
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the people "... shall be secure in their rights to the use and enjoyment of the natural resources of the State with due regard for the preservation of their values ..."
Article 1, Section 17, R.I. State Constitution.

Submitted by: The Clean Water Committee, Ecology Action for Rhode Island, 189 Mathewson Street, Providence, RI 02903

Submitted to: Senator John H. Chafee at a Public Hearing on Senate Bill S. 1018, on August 13, 1981

The Clean Water Committee of Ecology Action for Rhode Island would like to express its support for Senate Bill # S.1018 and House Bill # H.R. 3252.

We believe, as set forth in the Rhode Island Coastal Zone Management Plan, that the state's "barrier beaches, their associated sand dunes, wetlands and salt ponds are a limited and valuable resource in need of protection and careful management." As the Plan further denotes, "barrier beaches are complex and sensitive natural systems,...composed of unconsolidated materials," and are "continually altered by the actions of wind and ocean." Yet these barrier beaches "serve as natural storm buffers which protect the lands and waters behnid them." These barriers "are most effective as storm buffers when their dunes are well developed and protected from wind erosion." The "stability of the dunes is maintained naturally by beachgrass which traps and anchors wind blown sand." The beachgrass is "an extremely hardy plant, but is intolerant of trampling and disturbance." If these grasses are destroyed, exposed dunes can then erode, moving sand inward into enclosed ponds and wetlands, and reducing the capacity of the barrier beach to act as a storm buffer. The consequences can be "increased inland flooding and wave damage during storms, and disruption of salt ponds behind the barrier beaches."

The Rhode Island Coastal Zone Management Plan estimated that in 1977, about 65% of Rhode Island's 27.3 miles of barrier beaches were still undeveloped. The Plan went on to say that "barrier beaches are particularly ill suited to human occupation," and to describe the extent of storm damage that has occurred as a result of development of barrier beach areas.

In a workshop on coastal flood hazard areas, sponsored by the New England River Basins Commission in 1976, the State of Rhode Island was commended on its efforts to develop a meaningful coastal zone management plan, with specific emphasis on Rhode Island's efforts to emphasize the importance of barrier beaches as storm buffers. [1] However, in spite of strict regulations over development of coastal barrier regions in Rhode Island, development has continued, with even more expansion likely in those areas designated as developed beaches.

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[1] New England River Basins Commission. The Ocean's Reach, Digest of a Workshop on Identifying Coastal Flood Hazard Areas and Associated Risk Zones, February 1976.

Many state and local officials have blamed the federal flood insurance program for encouraging development in the high risk areas, because the availability of insurance reduces the risks of building and makes banks more willing to approve mortgages. At the 1976 workshop on coastal flood hazard areas, Joseph Potter, Vice President, Washington Trust Co., Westerly, RI, reported that "the investment we have made in coastal area mortgages covered by the National Flood Insurance Program (since the advent of that program in Rhode Island) totals about $3.3 million. This investment occurred from October, 1971 to February, 1976.

Edward A. Thomas, New England Director of the Flood Insurance Program was quoted as saying that the "insurance program had encouraged building in certain dangerous coastal areas," specifically in southern Rhode Island...(p. C-2). Crane Miller, a Washington attorney, formerly acting as Counsel to the United States Senate Commerce Committee's Subcommittee on Oceans and Atmosphere, speaking at the New England River Basins Commission workshop on coastal flood hazard areas, noted that the FIA should be able to deny flood insurance and disaster relief in high flood hazard areas, with the possibility of regulations that were tied to "(1) a history of high property damage from coastal storms, (2) demonstrated ineffectiveness of local and state regulations, or (3) repeated losses related to coastal storms followed by persistent repairing and rebuilding in the same high hazard area." (p. 68, NERBC Report, The Ocean's Reach, February, 1976). In comments that the Clean Water Committee submitted on the Federal Coastal Program Review at Public Hearings in Boston in 1980, we noted the concerns that we had in regard to the federal Flood Insurance Program and its advertent stimulus for development in coastal barrier zones.

In the Prov. J.
Sunday,
Oct. 1980

The two bills setting up the "Coastal Barrier Resources System," S. 1018 and H.R. 3252, attempt to address the problems of further development on undeveloped coastal barriers by denying federal expenditures and financial assistance within these areas. These restrictions would include the sale of flood insurance policies for new structures. Although we would prefer to see additional legislation to acquire undeveloped barrier areas as national wildlife refuges, we commend Senator Chafee and Representative Evans for their efforts to protect these valuable coastal resources, and to reduce the amount of federal funds which are serving directly and indirectly to enhance development of the nation's coastal barrier regions.

We find the following strengths in the Bills as proposed: the holistic view of coastal lands as a "Coastal Barrier Resources System;" the inclusion of the FIP for new construction in the list of expenditures to be denied; the three and five year review process to be conducted by Congress; the reporting system which will include an inventory of fish and wildlife resources; and the incorporation of information describing the ecologic importance of coastal barriers into the Bill itself. We are also pleased to see that federal expenditures will be permitted for conservation projects, fish and wildlife protection and scientific research. Current research efforts by the Coastal Resources Center of Rhode Island are enabling the State's decision makers to operate from a data base clearly associated with the local coastal system, thus avoiding some of the pitfalls of interpolation from generalized data gleaned from studies elsewhere.

One of our concerns about the Act is the "carte blanche" approval for expenditures for the purpose of "exploration, development, production, or transportation of energy resources which can only be carried out on, in or adjacent to coastal water areas." Activities associated with the processing, extraction and transport of energy resources should also be subject to careful review in terms of their impact on fragile coastal barrier zones. Funds should be tied to demonstration of minimal impact on the ecology of these areas.

Likewise, we are concerned that expenditures for "the maintenance of existing channel improvements and related structures" should also be tied to best management practices and mitigation of damage to fragile coastal systems.

Lastly, we are concerned that the approach of this Bill is limited just to undeveloped barrier regions, when some of the worst problems of damage to coastal barrier resources are in areas assigned, somewhat arbitrarily, to the category of developed barrier beaches. How few manmade structures constitute development? Who will determine these distinctions? Where do the coastal barriers begin & end?

Some other questions that we would like you to address are the following: (1) Would the Act prohibit the use of federally funded loans (e.g., F.H.A. loans) for construction in the coastal barrier zones? We believe it should. (2) Would the Act prohibit federal money from being used for acquisition of coastal barrier regions for recreational or environmental value? The Bill reads that the acquisition would be for the purposes of fish and wildlife protection and enhancement. (3) Would federal funds be denied for aquaculture or fishing activities in these zones?

We thank you for this opportunity to comment on these bills, and look forward to their adoption, as amended, as soon as possible.

Gaytha A. Langlois
Gaytha A. Langlois, Ph.D.
Co-Chairperson, Clean Water Committee

STATEMENT
U.S. Senate Environmental Pollution and Wildlife subcommittee
13 August 1981, Providence, R.I.

I am Barbara Fegan, member of the Natural Resources Committee of the League of Women Voters of Massachusetts. The League of Women Voters of Massachusetts is a state component of the League of Women Voters of the United States. Both bodies have been in natural resources protection on work ever since the first efforts to promote water quality in 1956. Even tho' my participation does not date that far back, I am happy to join the effort at this time. I appreciate the opportunity to offer testimony in support of the major provisions of S 1018, To Protect and Conserve Fish and Wildlife Resources.

Roughly 300 barrier islands stretch along 2,700 miles of beach front, from Maine to Texas. These barriers consist of shifting and unconsolidated sands that continually move in response to waves, winds, and currents. Because of their inherent instability to hurricanes and coastal storms, they are extremely unsuitable for development. In addition, development of barrier islands and beaches reduces the effectiveness of these areas in protecting marshes, estuaries and adjacent mainland areas from the ravages of the sea.

Despite the risks involved, federal aid to encourage develope is dispensed in many forms: Disaster assistance; support for highway. bridge and beach stabilization projects; and indriect assistance in the form of loans for home construction, loan guarantees and subsidized flood insurance. In fact, between 1976 and 1978, the federal government spent as estimated $500 million to support development on barrier islands.

The League believes this bill is critical for both fiscal and environmental reasons: it would protect fragile barrier systems from unwise development and save the federal government a substantial amount of money. The recent restriction on flood insurance thro' the Reconciliation Act is a wise move but the delay in effective date to 1983 leaves a window that could let a great wind of unwise development thro'. The passage of S 1018 would close this window.

There are some strengthening measures I'd like to have you consider. Our country is very diverse in its land forms as well as its people. The barrier systems in the New England and Atlantic Coast differ from those of our Gulf region and therefore there are activities of a non structural nature that could be permitted in some areas that would not be wise in others.

Private sector capital risk is just that and entrepreneurs do not need government subsidies to undertake risks. Their own analysis reveal the extent of possible gain over lost. A system fraut with risk of capital will demand careful evaluation and if the capital risk demands subsidy it will not be --it should not be taken. Any such subsidies are particularly inconsistent with the emerging economic recovery policy.

In closing, I thank you again for this opportunity to offer the League of Women Voters of Massachusetts support for the development of a Coastal Barrier Resource System.

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LEAGUE OF WOMEN VOTERS OF MASS.

97TH CONGRESS
1ST SESSION

S. 1018

To protect and conserve fish and wildlife resources, and for other purposes.

IN THE SENATE OF THE UNITED STATES

APRIL 28 (legislative day, APRIL 27), 1981

Mr. CHAFEE introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To protect and conserve fish and wildlife resources, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Coastal Barrier Resources Act".

SEC. 2. FINDINGS AND PURPOSE.

(a) FINDINGS.—The Congress finds that—

(1) habitats which are essential spawning, nursery, nesting, and feeding areas for migratory birds, aquatic organisms, and other wildlife are provided

within the coastal barriers along the Atlantic and gulf coasts of the United States and the adjacent wetlands, marshes, estuaries, inlets, and near shore waters;

(2) these fish and wildlife resources and their habitats are being irretrievably damaged and lost due to development on, among, and adjacent to, such coastal barriers;

(3) certain actions and programs of the Federal Government have subsidized and encouraged such development; and

(4) a program of coordinated action by Federal, State, and local governments is critical to the more appropriate use and conservation of fish and wildlife resources and habitats within the coastal barriers.

(b) PURPOSE.—The Congress declares that it is the purpose of this Act to minimize the damage to fish, wildlife, and other natural resources associated with the coastal barriers along the Atlantic and gulf coasts by restricting future Federal expenditures and financial assistance which have the effect of encouraging development of coastal barriers, by establishing a Coastal Barrier Resources System, and by considering the means and measures by which the long-term conservation of these fish, wildlife, and other natural resources may be achieved.

SEC. 3. DEFINITIONS.

For purposes of this Act—

(1) The term "coastal barrier" means—

(A) a depositional geologic feature (such as a bay barrier, tombolo, barrier spit, or barrier island) that—

(i) consists of unconsolidated sedimentary materials,

(ii) is subject to wave, tidal, and wind energies, and

(iii) protects landward aquatic habitats from direct wave attack; and

(B) all associated aquatic habitats, including the adjacent wetlands, marshes, estuaries, inlets, and near shore waters.

(2) The term "committees" refers to the Committee on Merchant Marine and Fisheries of the House of Representatives and the Committee on Environment and Public Works of the Senate.

(3) The term "financial assistance" means any form of loan, grant, guaranty, insurance, payment, rebate, subsidy, or any other form of direct or indirect Federal assistance other than deposit or account insurance for customers of banks, savings and loan associations, credit unions, or similar institutions.

(4) The term "Secretary" means the Secretary of the Interior.

(5) The term "System unit" means any coastal barrier, or combination of closely related coastal barriers, included within the Coastal Barrier Resources System established by section 4 of this Act.

SEC. 4. THE COASTAL BARRIER RESOURCES SYSTEM.

(a) ESTABLISHMENT.—(1) There is established the Coastal Barrier Resources System which shall consist of those undeveloped coastal barriers located on the Atlantic and gulf coasts of the United States that are identified and generally depicted on the maps that are entitled "Coastal Barrier Resources System", consecutively numbered 001 through 125, and dated .

(2) A coastal barrier was treated as an undeveloped coastal barrier for purposes of paragraph (1) only if there were few manmade structures on the barrier and these structures, and man's activities on the barrier, did not significantly impede geomorphic and ecological processes.

(3) A coastal barrier which was included within the boundaries of an area established under Federal, State, or local law or held by a qualified organization (as defined in paragraph (3) of section 170(h) of the Internal Revenue Code of 1954), primarily for wildlife refuge, sanctuary, or natural

resource conservation purposes was not included within the Coastal Barrier Resources System.

(b) AVAILABILITY OF MAPS.—(1) The maps referred to in paragraph (1) of subsection (a) shall be available for public inspection at the offices of the United States Fish and Wildlife Service in the District of Columbia and in other appropriate offices of the Service.

(2) Within sixty days after the date of the enactment of this Act, the Secretary shall provide copies of the maps referred to in paragraph (1) of subsection (a) to the chief executive officer of (A) each State and political subdivision in which a System unit is located, and (B) each affected Federal agency.

(c) BOUNDARY MODIFICATIONS.—Within one hundred and twenty days after the date of the enactment of this Act, the Secretary shall make such minor modifications to the boundaries of System units as depicted on the maps referred to in paragraph (1) of subsection (a) as are necessary to bring them into conformity with actual property boundaries of the areas concerned as of the date of the enactment of this Act. The Secretary shall submit written notice of all boundary modifications made under this subsection to (A) each of the Committees, and (B) the appropriate officers referred to in paragraph (2) of subsection (b).

SEC. 5. LIMITATIONS ON FEDERAL EXPENDITURES AFFECTING THE SYSTEM.

(a) Except as provided in section 6 of this Act, no new expenditures or new financial assistance may be made available under authority of any Federal law for any purpose within the Coastal Barrier Resources System, including, but not limited to—

(1) the construction or purchase of any structure, appurtenance, facility, or related infrastructure;

(2) the construction or purchase of any road, airport, boat landing facility, or other facility on, or bridge or causeway to, any System unit;

(3) the carrying out of any project to prevent the erosion of, or to otherwise stablize, any inlet or shoreline, except in cases where an emergency threatens life and property on lands and waters immediately adjacent to that unit; and

(4) the sale of flood insurance policies under the National Flood Insurance Act of 1968 (42 U.S.C. 4001 et seq.) with respect to structures the construction or substantial improvement of which is commenced after the date of the enactment of this Act.

(b) An expenditure or financial assistance made available under authority of Federal law shall, for the purposes of this Act, be a new expenditure or new financial assistance if—

(1) in any case with respect to which specific appropriations are required, no money for construction or purchase purposes was appropriated before the date of the enactment of this Act; or

(2) no legally binding commitment for the expenditure or financial assistance was made before such date of enactment.

SEC. 6. EXCEPTIONS.

(a) Notwithstanding section 5 of this Act, the appropriate Federal officer, after consultation with the Secretary, may make Federal expenditures or financial assistance available for the following purposes within the Coastal Barrier Resources System:

(1) The exploration, development, production, or transportation of energy resources which can only be carried out on, in, or adjacent to coastal water areas.

(2) The maintenance of existing channel improvements and related structures, such as jetties, and including the disposal of dredge spoils related to such improvements.

(3) Military activities essential to national security.

(4) Any of the following actions or projects, but only if the making available of expenditures or assist-

ance therefor is consistent with the purposes of this Act:

(i) The establishment, operation, and maintenance of air and water navigation aids and devices, and for access thereto.

(ii) Projects under the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601–8).

(iii) Projects for fish and wildlife protection and enhancement, including the acquisition of fish and wildlife habitat and related lands.

(iv) Scientific research, including but not limited to aeronautical, atmospheric, space, geologic, marine, fish and wildlife and other research, development, and applications.

(v) Assistance for emergency actions essential to the saving of lives or the protection of property and the public health and safety, if such actions are performed pursuant to sections 305 and 306 of the Disaster Relief Act of 1974 (42 U.S.C. 5145 and 5146) and section 1362 of the National Flood Insurance Act of 1968 (42 U.S.C. 4103).

(vi) The maintenance, replacement, reconstruction, or repair, but not the expansion, of publicly owned or publicly operated roads, structures, or facilities.

(b) For purposes of paragraph (2) of subsection (a), a channel improvement or a related structure shall be treated as an existing improvement or an existing related structure only if all, or a portion, of the moneys for such improvement or structure were appropriated before the date of the enactment of this Act.

SEC. 7. CERTIFICATION OF COMPLIANCE.

The Director of the Office of Management and Budget shall, on behalf of each Federal agency concerned, make written certification that each such agency has complied with the provisions of this Act during each fiscal year beginning after September 30, 1981. Such certification shall be submitted on an annual basis to the House of Representatives and the Senate pursuant to the schedule required under the Congressional Budget and Impoundment Control Act of 1974.

SEC. 8. PRIORITY OF STATE LAWS.

Nothing contained in this Act shall be construed as indicating an intent on the part of the Congress to occupy the field in which the Act operates to the exclusion of the law of a State, or a political subdivision of a State, on the same subject matter, or to relieve any person of any obligation imposed by any law of any State, or political subdivision of a State. No provision of this Act shall be construed to invalidate any provision of State or local law unless there is a direct and positive conflict between such provision and the law of the State, or political subdivision of the State, so that the two cannot be reconciled or consistently stand together.

SEC. 9. SEPARABILITY.

If any provision of this Act or the application thereof to any person or circumstance is held invalid, the remainder of the Act and the application of such provision to other persons not similarly situated or to other circumstances shall not be affected thereby.

SEC. 10. REPORTS TO CONGRESS.

(a) IN GENERAL.—(1) Before the close of the three-year period beginning on the date of the enactment of this Act, the Secretary shall prepare and submit to the committees a report regarding not less than one-third of the System units and such one-third shall include all System units that the Secretary considers to be especially significant because of fish, wildlife, or other natural resource values or because of the potential for habitat alterations induced by man.

(2) Before the close of the five-year period beginning on the date of the enactment of this Act, the Secretary shall prepare and submit to the committees a final report regarding all System units.

(b) CONSULTATION IN PREPARING REPORTS.—The Secretary shall prepare the reports required under subsection

(a) in consultation with the Governors of the States in which System units are located and after providing opportunity for, and considering, public comment.

(c) Report Content.—Each report required under subsection (a) shall contain, with respect to each System unit covered in the report—

(1) a summary of the fish and wildlife and other resources of the unit and of the natural hazards to human life and property that would likely arise if such unit were to be developed;

(2) recommendations for the conservation of the fish, wildlife and other natural resources of the unit based on an evaluation and comparison of all management alternatives, and combinations thereof, such as State and local actions (including management plans approved under the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.), Federal actions (including acquisition for administration as part of the National Wildlife Refuge System) and initiatives by private organizations and individuals;

(3) an evaluation of the effect of this Act on the use and development of lands that are not included in the Coastal Barrier Resources System, but are adjacent to System units; and

(4) recommendations regarding whether the prohibitions on new Federal expenditures and financial assistance contained in section 5(a) of this Act should be continued or whether additional, alternative, or modified actions should be taken to achieve the objectives of this Act.

Nothing in paragraph (2) shall be construed as prohibiting the Secretary from proposing recommendations treating two or more System units as a single entity for conservation purposes if the Secretary considers that the protection, enhancement, and management of the fish, wildlife, and other natural resources of the System units could be carried out more effectively or efficiently through such treatment.

(d) ADDITIONAL REPORT REQUIREMENTS.—Each report required under subsection (a) shall also contain—

(1) recommendations for additions to, or deletions from, the Coastal Barrier Resources System, and for modifications to the boundaries of System units; and

(2) a summary of the comments received from the Governors of the States, other government officials, and the public regarding the System units covered in the report.

SEC. 11. AUTHORIZATION OF APPROPRIATIONS.

There is authorized to be appropriated to the Department of the Interior $1,000,000 for each of fiscal years

1982, 1983, 1984, 1985, and 1986 for purposes of carrying out section 10, and such sums shall remain available until expended.

COASTAL BARRIER RESOURCES ACT

WEDNESDAY, OCTOBER 21, 1981

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON ENVIRONMENTAL POLLUTION,
Washington, D. C.

The subcommittee met, at 2:10 p.m., in room 1202, Dirksen Senate Office Building, Hon. John H. Chafee (chairman of the subcommittee) presiding.

Present: Senators Stafford, Chafee, Symms, and Gorton.

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator CHAFEE. I want to welcome everyone to these hearings which deal with the Coastal Barrier Resources Act. This is a hearing before the Senate Environmental Pollution Subcommittee. There will be perhaps members of the full committee joining us.

I am delighted that this Act, the Coastal Barrier Resources Act, has the support of 20 Senators now. Amongst them are Senators Cohen, Mitchell, Specter, Stafford, Randolph, Simpson, Dodd, Pell, Roth, Levin, Cranston, Heinz, Moynihan, Leahy, D'Amato, Biden, Gorton, Bumpers, and Tsongas.

The Coastal Barrier Resources Act, which I have introduced in the Senate and which Representative Tom Evans has introduced in the House, prohibits the Federal Government from funding commercial and residential growth on undeveloped barrier beaches and islands—a policy which will help save Federal dollars and help conserve some of this country's most beautiful and fragile landforms.

Rachel Carson, in "The Sea Around Us," wrote, "The continents themselves dissolve and pass to the sea, in grain after grain."

Barrier beaches and barrier islands are the protection that prevents much of this continent's rim from dissolving into the sea—they are the first line of defense against shifting tides, raging hurricanes, and swift ocean currents.

They are not landforms suitable to alteration by man.

The coastal barrier resources bill before us today presents a unique opportunity to protect these natural treasures and, at the same time, save the taxpayers' money.

Of the 1.5 million acres of barrier beaches and islands stretching 2,700 miles along the Atlantic and gulf coasts, somewhat more than one-third is protected by State, Federal, local, or private sources; one-third has been developed, and that is gone; and a little less than one-third is undeveloped but also unprotected.

I strongly believe that Congress should make every effort to conserve these undeveloped barrier beaches for three reasons.

First, these are places of incredible, unspoiled beauty that deserve to be preserved for everyone, for all our citizens, to enjoy. They should not be areas where taxpayers' dollars subsidize expensive buildings.

Second, the grassy dunes, the salt marshes, and the tidal estuaries of the barrier islands provide essential areas where healthy wildlife populations can find shelter, food, and a tranquil place to raise their young. Barrier beaches and their neighboring aquatic systems are places to nest, nurse, feed, and rest for millions of migratory waterfowl, shorebirds, and other wildlife.

As roads, sewers, bridges, and buildings are constructed on these fragile barriers, the beaches and dunes are eroded, their adjacent wetlands are disrupted. Slowly but inevitably, fish and wildlife are driven from their homes, and a precious natural resource is lost.

My third reason for seeking the prohibition of Federal spending on these undeveloped barrier islands is that it makes no economic sense for the Federal Government to be in the business of subsidizing development in these volatile areas. Yet, according to Interior Department estimates, nearly half a billion dollars in Federal funds were spent on barrier island development between 1976 and 1978.

This funding was used for Federal flood insurance, bridges, roads, sewers, loans for economic development, and loans for home construction, to name just a few. One example of this wasteful Federal spending is a $65-million plan to replenish sand on a well-developed beach, despite the warnings from geologists that the sand will disappear.

Some critics have charged that the cutoff of Federal flood insurance called for in this legislation is too drastic, that it would deprive private property owners reasonable use of their land. First, this argument is unfounded because the legislation would not deprive anyone from doing anything with their land. Second, I would like to point out to these critics that the issue of flood insurance cutoff is moot. The 1981 omnibus reconciliation bill contained a provision that prohibits Federal flood insurance on undeveloped barrier islands and beaches, those areas designated by the Secretary of the Interior. This would take effect October 1, 1983. I am delighted Congressman Evans is here. I worked closely with him in fashioning that provision, and I believe that although this is an important first step in achieving the goals of the Coastal Barrier Resources Act, there is much more that needs to be done. Other forms of Federal funding on undeveloped barriers should be prohibited as well.

Certainly in the context of this country's current fiscal austerity, subsidizing development on barrier areas by the Federal Government is a travesty. When we are reducing school lunch funds, support for medicaid, and a host of other programs benefiting the less advantaged, it makes no sense to spend Federal dollars to subsidize projects that are often incompatible with the public's interest.

If the country were richer, and if our coffers were fuller, I would propose acquiring all undeveloped barrier beaches and islands as national wildlife refuges. But recognizing the tight budget, we must look for other ways to conserve these undeveloped barrier lands from future degradation and exploitation. Cutting off Federal funding in these areas is a viable alternative.

It has been estimated that in the next 20 years, it could cost this Government as much as $11 billion to continue to fund development on barrier beaches and islands that remain unspoiled. With the enactment of the Coastal Barrier Resources Act, the taxpayers would save an estimated $200 to $500 million a year [$500 million is half a billion dollars] and at the same time protect these natural treasures.

It should be noted—this is important, and I would remind the witnesses—there are exceptions to the spending prohibitions in this bill. Federal assistance for coastal water-dependent energy activities and exploration would be permitted. Federal funds would also be available for air and water navigation aids and devices, fish and wildlife protection, and enhancement programs, national security activities, and disaster relief to save human lives. This would also continue.

This bill is not an attempt to change State and local laws, or to impose Federal laws on private land use. Private property rights are protected under this bill—landowners are free to do what they will with their land, but at their own financial risk, not at the risk of the Federal Government.

We look forward to incorporating the views of the witnesses in the final bill which will be referred to the subcommittee for consideration, then to the full committee and then, of course, to the Senate.

I want to thank each of the witnesses. I am delighted that we have at the table now two gentlemen who have been very strong leaders in this measure and in this whole field. Senator Dale Bumpers introduced legislation of this nature a year ago and has been a tremendous supporter of this activity. And, of course, Representative Tom Evans is the coauthor of this particular piece of legislation and introduced it in the House. Why don't we start alphabetically. That will solve a lot of problems.

Senator Bumpers, we are delighted you are here and look forward to your testimony.

STATEMENT OF HON. DALE BUMPERS, U.S. SENATOR FROM THE STATE OF ARKANSAS

Senator Bumpers. Mr. Chairman, thank you very much. I will try to get through this so we don't discommode the Congressman.

As you pointed out, I have long advocated the elimination of Federal subsidies of wasteful and unwise development. The bill I introduced last year was reported out of the committees unanimously, but, as you recall, it was not acted upon before adjournment. I have also introduced a bill in this Congress. But I am especially pleased to join as a cosponsor of the chairman's bill, S. 1018.

There are more than 300 barrier islands, barrier spits, and bay barriers located off the Atlantic and gulf coasts. These barriers are critically important for a number of reasons. They provide protection for the mainland from storms and fluctuations in sea level; and the marshes and wetlands associated with the coastal barriers are important wildlife habitats and sources of nutrients for fish populations. In many cases, the aesthetic, cultural, and natural resources of the barriers are unique and extensive. The rate of development on coastal barriers—four times the national average since 1960—is one indicator of the attractiveness of these areas.

Unfortunately, however, the coastal barriers are sensitive and unstable landforms, and they are shifting. Most consist of unconsolidated sand, and, as a result, of wave action and rising sea levels, the barrier islands tend to migrate toward the shoreline. Consequently, the barriers are easily and permanently damaged by development activities which interfere with natural processes. For example, bulldozing sites to allow oceanfront development greatly reduces the stability of sand dunes; diking and filling wetlands and marshes often destroy important wildlife habitats and disrupt nutrient flows; jetties, groins, and other structures designed to enhance one beach will inevitably cause the erosion of another beach, as they restrict the normal flow of sand.

The cumulative negative effect of development on the coastal barriers is tremendous. Federal resources are wasted on unsound construction and flood insurance payments, lives are jeopardized, and the unique natural and cultural values of the islands are diminished.

It is estimated that more than 500 million Federal dollars, as the chairman said in his opening statement, have been spent over the past 3 years on barrier islands through 30 different programs administered by 20 different Federal agencies. Much of this money encouraged, and in fact subsidized, the kind of unwise development which I mentioned earlier. Clearly, it is a tremendous waste of Federal funds to encourage new development by providing beach stabilization, bridge construction, wastewater treatment facilities, and flood insurance in the first place, and especially so when the Government pays for reconstruction of these same facilities, often in the same place, following a major storm.

Mr. Chairman, the best way to emphasize the necessity of prohibiting further Federal subsidization on the undeveloped coastal barriers is with an example. In 1979, Hurricane Frederick destroyed much of the development on Alabama's Dauphin Island. Property losses were estimated at $2.3 billion. In addition to helping rebuild the structures on the island, the Federal Government will also pay 90 percent of the $34 million cost of rebuilding the bridge to the mainland which the hurricane had destroyed. The Federal contribution for the bridge, according to one estimate, will exceed $50,000 for every permanent resident on the island.

The second point I want to emphasize is the increased risk to human life that results from federally subsidized development. Structures on these islands are extremely vulnerable to the violent storms and hurricanes which frequently strike the coastal barriers with the full brunt of their force. Access to these islands is usually by ferry or two-lane roads which are often inadequate means of evacuating people quickly and safely in cases of impending hurricanes or other disasters.

Mr. Chairman, for fiscal, environmental, and safety reasons, the Federal subsidy of development on the currently undeveloped coastal barriers must be limited. One positive step has already been taken. The 1981 budget reconciliation has prohibited the issuance of flood insurance on undeveloped barrier islands after October 1, 1983. This action will create a strong disincentive for future development, but additional prohibitions are needed. Without a limitation on Federal financial assistance for development, the Federal expenditure for coastal barrier projects could reach $11 billion over the next 20 years. The bill your subcommittee will consider will prohibit the expenditure of Federal funds for construction or purchase of structures, roads, bridges, beach stabilization projects, or other facilities.

Mr. Chairman, I hope the subcommittee will consider adding another provision to the bill, and that is the prohibition against the issuance of Federal permits and licenses on the undeveloped barrier islands affected by this bill. Permits and licenses which encourage development include those which allow dredge and fill, the disposal of wastewater and sewage, and the construction of bridges or other transportation projects. Prohibiting any new permits would be consistent with the intent of the bill and would, I believe, greatly increase its effectiveness.

In summary, Mr. Chairman, S. 1018 will accomplish three important objectives: No. 1, it will help reduce the wasteful expenditure of Federal funds for unwise development on the coastal barriers; No. 2, it will reduce the safety hazard associated with hurricanes and other storms; and No. 3, it will protect the barrier islands themselves, preserving their important natural and cultural resources.

Mr. Chairman, I commend you for your efforts to protect the coastal barrier resources and to reduce wasteful Federal spending. I hope the subcommittee will move quickly to mark this bill up and report it.

I certainly appreciate the Congressman allowing me to go first.

Senator CHAFEE. Senator, first, I want to say that your record in this area and the entire environmental area is an outstanding one. We appreciate everything you have done in connection with this legislation in prior years and your support of it this year. We will proceed as rapidly as we can with this legislation. Thank you very much for coming here.

Senator BUMPERS. Thank you, Mr. Chairman.

Senator CHAFEE. I note that the chairman of the full committee is here, a leading environmental supporter. Senator Stafford, do you have a statement?

Senator STAFFORD. No, I do not, Mr. Chairman. I am here to listen and learn today. I will defer in honor of our witnesses.

Senator CHAFEE. Fine. We are delighted you were able to come here.

The next witness is Congressman Tom Evans from Delaware. He is the author of this counterpart legislation in the House. He has worked very assiduously on this measure, and has given a great deal of concern to it, and, of course, has an outstanding environmental record.

Congressman Evans, we are very pleased you could be with us today.

STATEMENT OF HON. THOMAS B. EVANS, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF DELAWARE

Representative **Evans**. Mr. Chairman, I am very pleased to be with you today. I would like to associate myself with your remarks at the opening of the hearing.

As you know, you are the sponsor of S. 1018, the so-called Chafee-Evans bill, and I am the sponsor of H.R. 3252, the companion bill in the House. I would like to say I am pleased to report we have almost 50 cosponsors in the House of Representatives for H.R. 3252, evenly divided among Democrats and Republicans, I might say. So it is a bipartisan measure. I am also happy to report that about 25 percent of those 50 come from areas that are potentially affected by this piece of legislation. They have barrier islands in their districts. And I think that is a significant factor.

Senator **Chafee**. Congressman, could you touch on just where the legislation is and what travel it would have if all went well?

Representative **Evans**. Well, it is in the Subcommittee on Fisheries and Wildlife Conservation of the Merchant Marine and Fisheries Committee. We have had one hearing under Mr. Norman D'Amours' chairmanship because Mr. Breaux, the chairman of the subcommittee, was out of town at the time. We are hopeful Mr. Breaux will call for additional hearings. And I believe with the support that we have for the bill on the Merchant Marine and Fisheries Committee, and with some substantial support in the House of Representatives on both sides, I think it stands a good chance of passage. And I think your hearing today is certainly going to give it some impetus.

Unfortunately, with the help of the Federal Government, our barrier islands are rapidly becoming urbanized. This development is not only dangerous to the lives and property of those who develop barrier islands, but in the rush to develop, we often destroy those resources and values which drew us to the coast in the first place.

Mr. Chairman, I believe the Coastal Barrier Resources Act has attracted widespread support in the House and in the Senate because it just plain makes sense. It makes sense to stop throwing our tax dollars down a bottomless rathole. It makes sense to protect natural resources that are vital to the economies of our coastal States, and it makes sense to restrict Federal programs which give people a false sense of security about the safety of living in a very hazardous environment.

The President, and probably every Member of Congress, has often spoken of the need to eliminate waste and fraud and abuse. I know I have spoken on that issue many times, as others have, and now we have an opportunity to implement that rhetoric. We have an opportunity to eliminate some abuse and some waste. And I think we have to be more creative as we find ways in which we can balance the budget to bring down high interest rates and high rates of unemployment.

It is wasteful and totally unnecessary, in my opinion, to spend better than half a billion dollars over 3 years to aid barrier island development when we know the inevitability of those areas being devastated by hurricanes. Expenditures in those storm-prone areas amount to nothing more than high stakes gambling, using the taxpayers' dollars. Needless to say, the law of averages eventually catches up with the gambler, and it is the taxpayer who loses.

The Coastal Barrier Resources Act would break the cycle of Federal aid which stimulates development on barrier islands only to be followed by repeated rebuilding assistance after devastating storms. It does this by restricting nonessential Federal expenditures and financial assistance on those Atlantic and gulf coast islands that are presently not developed.

I think it is important to point out, Mr. Chairman, Mr. Stafford, the Coastal Barrier Resources Act does not authorize the acquisition of any lands by the Federal Government. I just don't think we can afford that at this particular time. Nor does it impose any land use restrictions on State and local governments or private property owners. What the bill does do is let property owners develop their land as they see fit—so long as they fully bear the costs and the risks.

Before closing, Mr. Chairman, I want to touch on the matter of the national flood insurance program. Although the Chafee-Evans bill would prohibit flood insurance on undeveloped coastal barriers, just as it would prohibit other types of Federal assistance, I hope your committee does take note of the fact the Congress has already expressed its will on this matter. As you pointed out and as Senator Bumpers pointed out, it is included in the Budget Reconciliation Act of 1981, which was signed by the President this August. That bill included a provision to prohibit Federal flood insurance for new construction on undeveloped coastal barriers as of October 1, 1983. The initial provision, which was an amendment I introduced in the Banking Committee, called for an immediate cutoff. However, the Senate insisted on a compromise date, and I think this is a fair compromise which allows for a transition period for those who may hold property but have not yet erected structures.

In closing, Mr. Chairman, it is not every day that one has the opportunity to support legislation which combines the twin objectives of fiscal restraint and environmental protection. This bill does combine those twin objectives. I think we have to be more creative in finding ways to reduce Federal spending, and this bill does exactly that.

With your permission, Mr. Chairman, I will submit for the record certain items which amplify on my comments this afternoon.

Senator CHAFEE. Certainly, we will take those comments for the record. (See pp. 193–199.)

I notice that Senator Symms is here, a member of our full committee. Senator, do you have any comments you would like to make at this time?

Senator SYMMS. No opening statement, Mr. Chairman. I just wanted to welcome my colleague Congressman Evans. I am glad he is here to testify and I am glad to have his point of view. Thank you, Mr. Chairman.

Senator CHAFEE. Thank you very much, Senator Symms.

Thank you, Congressman, for a fine statement. I have a question. You were intimately involved in the reconciliation measure dealing with the ending of Federal flood insurance, which I, for one, would be delighted to see end immediately, but I think your comments are fair in that the October 1983 date does allow some time for people to get organized in anticipation of it. What effect do you think the 1983 cutoff will have, on the ability of property owners to obtain mortgages?

Representative EVANS. Well, we were concerned about that particular issue, Mr. Chairman, and so we introduced an amendment that was accepted by the conference. The conference adopted in the Budget Act explicitly severing the legal link between having flood insurance and getting a mortgage from a federally related lending institution. If those lending institutions choose to lend money, that will quite properly be a decision between the lending institution and the individual property owner. We must remember that much of our coast was developed long before the Federal flood insurance went into effect in the 1960's.

I think a recent story in a New Jersey newspaper makes the point very well, and I quote from an article from the Asbury Park Press dated September 20, 1981.

> Several lending institutions in Monmouth and Ocean County said they would continue to make mortgages on buildings in flood hazard areas even if Federal flood insurance were not available. "We would have to be very careful," said one of their vice presidents at Shadow Lawn Savings and Loan, "but we would look at each application and say maybe one is a greater risk than another." But he added his institution would absolutely not cease granting mortgages because of the unavailability of Federal insurance. He pointed out S&L's made mortgages on flood hazard areas before Federal flood insurance was established in 1968, and he said he could see no reason why they wouldn't do so again.

Mr. Chairman, I think these businessmen have a very sound approach, as one would expect from the private sector. If the risks are sufficiently low, they will loan money. If the risks are sufficiently high, they will not loan money. That is the way it should be in our free enterprise system. Entirely too many people in our country expect the Federal Government to take all the risk out of their lives. They expect a no-risk society, and that is not possible, nor probable, nor realistic in our times. I think it is entirely consistent with the President's comprehensive economic package, with the goals established by the President, that we reverse that trend.

And finally, Mr. Chairman, there are some that argue not all barrier islands are equally hazardous, some areas are more stable than others. This may be, although I would suspect the hazards vary from dangerous to very dangerous. If this is the case, this is precisely the type of information our lending institutions will take into account in making available mortgage loans.

Senator CHAFEE. Now, as I understand, the Federal flood insurance came into effect in 1968.

Representative EVANS. It did.

Senator CHAFEE. Sometimes you get the impression that Federal flood insurance has been going on as long as the Republic has, and by taking that away as of October 1983 we are taking away a right given by the Constitution that has been with us for 200 years.

Representative EVANS. I don't think there is any right in perpetuity to this type of Federal subsidy. I think in view of the time we live, we should be more creative. This is one of the creative ways we can eliminate waste and abuse.

Mr. Chairman, we have a vote over on the House side. I appreciate very much your permitting me to appear before you today, and I am very pleased and honored to join with you in the Chafee-Evans bill.

Senator CHAFEE. Thank you.

Representative EVANS. We call it the Evans-Chafee bill in the House.

Senator CHAFEE. Thank you very much for being here. Congressman, if my compatriots have questions, we can submit them to you in writing.

Representative EVANS. I would be happy to come back any time.

Senator CHAFEE. I have a statement by Senator Thurmond, distinguished Senator from South Carolina, which I will submit for the record. Unfortunately, Senator Thurmond was unable to be here himself.

[The statement referred to follows:]

STATEMENT OF STROM THURMOND, U.S. SENATOR FROM THE STATE OF SOUTH CAROLINA

Mr. Chairman, I appreciate the opportunity to appear before you and your subcommittee today to discuss the proposed barrier islands legislation, S. 1018. This legislation, which I oppose, would restrict future Federal expenditures and financial assistance related in any way to the development of heretofore undeveloped coastal areas.

Among the arguments that supporters of S. 1018 have advanced to justify this legislation is the contention that the Federal Government should not be "subsidizing" the development of these coastal areas through the Federal flood insurance program. While I agree that there is a need to improve the fiscal integrity of this program, such an improvement should not be attempted through such drastic methods as are contained in this bill.

Implementation of a more actuarially sound rating system for flood insurance premiums is a far superior approach to the fiscal integrity issue than that contemplated in this bill. In fact, the Federal Insurance Administration has already taken steps in this direction. Additionally, because Federal flood insurance will continue to be offered to those areas already deemed developed, the argument that this legislation will effectively end any Federal "subsidy" for coastal area construction is misleading. I am not in favor of any Federal "subsidization" of coastal development, and I stand ready to work with you, Mr. Chairman, and with my other colleagues in the Senate to assure that an actuarially sound rating system for flood insurance is devised.

The enactment of this legislation, in my opinion, also would deprive private property owners of the reasonable use of their lands. Landowners in these coastal areas should have as much right to build a house or condominium on their property as would private landowners in other areas. Although it is argued that this bill does not deny them this right, the simple fact is that without the Federal flood insurance program, landowners in these coastal areas will not have access to mortgage money for construction purposes. Thrift institutions will not make loans in these areas without adequately insured security, and because of the long Federal involvement in the flood insurance business, there are no private insurers who provide this service.

In addition, the ban which would be placed on all Federal assistance for bridge and road construction, along with other items, for these coastal areas would deny residents and property owners in these areas assistance from the Federal Government which is available to citizens in virtually every other area of the country. The members of this committee should carefully consider whether it is equitable or wise to deny Federal assistance and insurance to certain geographical jurisdictions in this country, while leaving the services of the Government, paid for by all taxpayers, fully available to other areas of the country.

As you know, Mr. Chairman, the Federal Government also currently provides assistance and insurance to areas of the country prone to earthquakes, inland flooding and other natural disasters. I do not believe it is equitable to single out coastal barrier islands for a denial of the assistance made possible by revenues from all taxpayers, including those from coastal areas.

This legislation, labeled by supporters as a reasonable approach to remedying fiscal problems with the flood insurance program and other Federal programs, will in fact result in a no-growth policy in coastal areas of the East and Gulf Coast States. The effect of enactment of this legislation on these States, particularly my State of South Carolina, would be devastating. Not only are totally undeveloped islands targeted, but further development on many partially developed islands would also be affected. Many communities on and near barrier islands base their economies on the utilization of such regions. Potential revenues to be derived from development of resort areas would be lost. Careful consideration must be given to the impact such a dramatic change in Federal policy would have on the tax base of coastal communities and States, as well as to new investment opportunities that will be lost, and other considerations. Any cost savings dervied from denying these regions the opportunities I have mentioned, particularly if an actuarially sound rating system is implemented in the flood insurance program, may well fall far short of the benefits gained from allowing the reasonable development of these coastal areas.

I have no desire to see the natural beauty of these coastal zones destroyed; however, this concern must be addressed in a reasonable manner. Just as there should not be blanket uncontrolled development of these areas, so, also there should not be a total ban placed on such development by the Federal Government. However, without the Federal flood insurance program, and additional Government services accorded to every other section of the country, this would be the likely result, as I believe many of the supporters of this legislation are fully aware. Instead of the approach embodied in this bill, as reasonable policy for growth, which also takes into account the need to maintain the beauty and ecological balance in these areas, should be pursued. Such a policy could be advanced by working through State coastal councils and other appropriate State and Federal agencies.

Mr. Chairman, the adoption of this legislation would have a devastating effect on coastal development in my State of South Carolina and in many other East and Gulf Coast States. I urge you and the other members of this committee, in your deliberations, to consider the comments I have made and the alternatives I have offered. I am confident that a more realistic approach can be found to address the legitimate concerns of the sponsor and other supporters of this bill.

Senator **Chafee**. The next witness is the very distinguished Secretary of the Department of Interior, Secretary Watt.

Mr. Secretary, we welcome you here. We appreciate your taking the time to come here.

Senator **Symms**. Mr. Chairman, might I just make one comment? I have a meeting in Senator Baker's office.

Senator **Chafee**. Certainly.

Senator **Symms**. I just want to join in welcoming Secretary Watt and encourage him to keep up the good job he is doing as Secretary. Those of us in the West love the job he is doing. Notwithstanding what I read in the Washington Post and The New York Times, you are doing a great job, and keep it up.

STATEMENT OF HON. JAMES G. WATT, SECRETARY, DEPARTMENT OF THE INTERIOR

Secretary **Watt**. Thank you.

Senator **Chafee**. Mr. Secretary, I noticed in some publications that it was suggested that you are a Johnny-come-lately as far as support for this barrier islands legislation, and I would want to make it clear, although you and I don't agree on all issues, that you have been interested and concerned about this, and supportive of it, going way back to the first time that we met. I have a handwritten note from you, dated April 27, in which you indicate your support for this type of measure, that you are working within the Cabinet council to formalize a policy on it. So just for those who are suggesting that you just hopped on the train as it pulled out of the station, I want to make that very clear, that you have been concerned and supportive in this area for many, many months.

Secretary **Watt**. Thank you, Mr. Chairman.

Senator **Chafee**. Do you have a statement you want to make, Senator Stafford?

Senator **Stafford**. No. I will join in the welcome to the Secretary here before our committee. I am also a cosponsor of the Chafee bill, which we call the Stafford-Chafee-Evans bill in Vermont.

Secretary **Watt**. Mr. Chairman, I can't help but be amused as I sit here and watch the proceedings that the mountain representatives from Vermont and Idaho and Washington are here to rally around your barrier islands bill.

Senator **Chafee**. We are delighted to have the support of people who aren't directly affected. We will take them all, Mr. Secretary.

Secretary **Watt**. I do have a prepared statement, it is 11 pages long, that I would like to submit for the record, and if I may, just highlight it.

Senator **Chafee**. Excellent. We will put that in the record.

Secretary **Watt**. I appreciate your consideration in postponing the earlier hearings so we could get our house in order. This is a subject that, as you have mentioned, is of special interest to me. I was first introduced to the subject in 1972 when I was Director of the Bureau of Outdoor Recreation.

You will recall at my confirmation hearing, in this room—it was a little more crowded at that time—we discussed the need for protection of barrier islands, and I outlined at that time the fact that it was discussed as one of the heavy recommendations that we presented in the first nationwide outdoor recreation plan that I authored in 1973. So it is not a subject to which I just recently became acquainted. It is a subject of some interest to me.

We also discussed at those confirmation hearings the need for wetlands. That is a special interest of yours, as a private citizen, and as Governor, Senator, and chairman of this committee. I want to assure you, as I mentioned then, we are continuing with an aggressive acquisition program under the wetlands program. I have personally chaired all the meetings that have been held since I have been Secretary, and continue, and expect to continue, chairing those because of the heavy importance that I put on the acquisition of wetlands as well as the barrier island protection.

Highlighting the statement, I am pleased to be able to testify personally on this matter with regard to your bill. I think the legislation presents an opportunity for substantial savings in Federal expenditures, and at the same time recognizes the environmental and recreational values of the Nation's undeveloped coastal barriers.

From Maine to Texas, our coastline is fronted by long, narrow landforms composed of unconsolidated and shifting sand. They form a natural defense against coastal storms and hurricanes, substantially reducing the power and force of these storms before they reach the mainland. While they are hazardous and expensive for human habitation and development, coastal barriers are excellent habitat for fish and wildlife. They also provide open space and public recreation opportunities. Increasingly, however, actions and programs of the Federal Government have facilitated and even encouraged development of these areas. Then, when these developed areas suffer inevitable erosion and storm damage, the Government spends substantial amounts of money assisting in reconstruction and stabilization. Thus, taxpayers subsidize initial development, a hurricane sweeps the area, the taxpayers via Government assistance encourage rebuilding, and the cycle begins again.

Mr. Chairman, I congratulate you and Congressman Evans particularly on this legislation, as well as Senator Stafford and Senator Symms and other cosponsors. You have recognized that the Federal Government should not dictate what private property owners may or may not do with their property, but also that taxpayers should not shoulder the recurring costs and high risks of private development on coastal barriers. Because we believe it likely that private industry will assess the financial risks far more carefully in the absence of federal assistance, and exhibit greater sensitivity to the costs, development is likely to take place on only the least hazardous and most stable coastal barriers. This legislation is a balanced and lighthanded approach to an environmental concern, one that does not see the stifling of free enterprise as the only means to the desired end.

Federal assistance comes in a variety of forms ranging from direct expenditures, such as grants for highway and bridge construction and beach stabilization, to indirect assistance in the form of loan guarantees for home construction or casualty loss tax deductions. In addition, Federal flood insurance and disaster assistance programs have in the past substantially reduced the true risk of development on coastal barriers. The national flood insurance program has become the second largest liability against the Federal treasury after the social security program. The Federal Emergency Management Agency estimates that it now has $10 to $15 billion in flood insurance coverage on coastal barriers.

Even after a phase down in the flood insurance program under the recently enacted Omnibus Budget Reconciliation Act of 1981, substantial Federal expenditures would remain. The Federal Government spent approximately $800 million during the past 6 years in assisting construction on coastal barriers, not including flood insurance.

Moreover, with no change in Federal policy, the present value of Federal expenditures on undeveloped coastal barriers over the next 20 years could cost the American taxpayer from $5.5 billion to $11 billion for initial construction, depending upon the degree of development. In addition, continued subsidized development may impair the important resource and recreational benefits which are contributed by coastal barriers.

One out of every four Americans lives within 100 miles of the Atlantic or gulf coasts. Coastal barriers are central to the lives of many of these citizens, either through direct use and enjoyment of the beaches, or indirectly because they provide habitat to a wide variety of fish and wildlife species that benefit large numbers of people.

For example, more than 90 percent of the commercial fish harvested in the Gulf of Mexico and over 80 percent of the commercial harvest on the Atlantic coast is comprised of species dependent on coastal barrier habitats. In 1980, these percentages of the commercial harvest translated into a dockside value in excess of $1 billion.

While it is extremely difficult to generalize about the natural resources of coastal barriers and adjacent waters, there is no question that these habitats contribute large numbers and a great diversity of fish and wildlife resources, which are used and enjoyed by many.

Before I close, let me make a brief report on our progress in implementing the provisions of the Omnibus Budget Reconciliation Act of 1981. As you know, that Act prohibits the sale of Federal flood insurance for new construction or substantial improvements of structures on undeveloped coastal barriers after October 1, 1983. I am assigned the responsibility under that Act of designating undeveloped coastal barriers where new flood insurance coverage will be restricted. Soon we will publish in the Federal Register a notice of the procedure which we intend to use in carrying out this responsibility. Within the latitude afforded by this legislation and its legislative history, we will further refine terms such as "coastal barrier" and "undeveloped" to provide a firm definitional basis for actual designations.

This notice of intent will also set forth the very public process by which our task will be accomplished. We hope to have a draft definitional framework and draft maps available for public comment in January followed by other opportunities for public participation. At that time, I plan also to meet with the Governors and many Members of Congress to gain their firsthand knowledge of the coastal barriers in their States.

As required by the law, the results of this public study and the proposed designations—as they may be revised as a result of public comment—will be provided to Congress by August 13, 1982. We hope to issue our final interpretation of the definitions and final designations in the fall of 1982, to give the Federal Emergency Management Agency and private property owners ample time to prepare for the cutoff of new flood insurance.

In conclusion, Mr. Chairman, the Reconciliation Act and S. 1018 chart a sensible course to conserve both hard-earned tax dollars and the natural resources of coastal barriers. I believe that your carefully considered proposal is precisely the sort of imaginative environmental legislation we need—legislation which can solve real problems in the stewardship of our natural resources, while at the same time responsibly addressing America's equally serious economic problems. However, we need to conform S. 1018 to the provisions of the Reconciliation Act in determining which coastal barriers will be affected.

Although the administration has no objection to passage of your bill, I think you will agree, Mr. Chairman, that the key to making this bill effective is a workable definition of undeveloped coastal barriers. As I have stated, my Department is responsible under the Reconciliation Act for designating undeveloped coastal barriers, and to do that we must refine that definition. In the next few days, my staff will have a draft for my consideration, and I then want to meet with you and your colleagues in the Congress to refine the definition further. A workable definition—to use in implementing both the Reconciliation Act and S. 1018—will insure the success of this legislation, and I am anxious to work with you to achieve that success. However, to give you just verbiage today on how much I support your bill, without making provisions for how we are going to make it work, the critics would attack us both. By agreeing today to work through the definitional process together, we can insure that the goals we jointly seek through this bill will be achieved.

Mr. Chairman, that concludes my summary, and I have the experts here that can help answer any questions that you or your colleagues have with regard to our positions on this very important piece of legislation, and one that we look with favor toward its enactment.

Senator CHAFEE. Mr. Secretary, why don't you introduce those who are with you.

Secretary WATT. With me are Rick Davis, who is Deputy Assistant Secretary of the Department of Interior, and Pete Rainer of our Solicitor's Office, who have worked with me on this bill.

Senator CHAFEE. Thank you for your testimony, Mr. Secretary.

As I recall, in the development of this legislation some maps have already been prepared by the Fish and Wildlife Service, have they not?

Secretary WATT. Yes, they have.

Senator CHAFEE. These maps represent a 4-year effort. I have had an opportunity to see some of the maps, and it is obvious your Department has been working in this area for some time. I further understand that the maps have gone out to the local communities for comment.

Secretary WATT. That is correct.

Senator CHAFEE. They have come back with those comments. What is your suggestion now about where you go from here?

Secretary WATT. Those maps will be available the first of November. We think that there has been some good input on that from local and State government officials and other interested parties. We think it would be wise to conform S. 1018 to the Reconciliation Act, which then makes the definition for an undeveloped coastal barrier critical in determining what lands are subject to the flood insurance and which are not and which will be subject to Federal assistance. Once that definition is understood and found to be acceptable by most of you and the Governors and ourselves, then I think we will have a meaningful document. So before I can really make an all-out meaningful commitment to you, I need to firm up that definition of what is an undeveloped coastal barrier. Those maps will be available the first of November, yet the definition needs to allow for shifting and drifting of those barriers rather than fixing in on a photographic type map that says what it is today.

Senator CHAFEE. Well, obviously the maps are the key thing here. I certainly wouldn't want to see the Department come forward with a definition of something that excludes what most of us think of as barrier islands.

Secretary WATT. That is exactly the point I am trying to make. That is why we will work closely with you personally and other Members of Congress to see it is a meaningful definition and doesn't gut the spirit of the Reconciliation Act or the intent and spirit of the act that you and your colleagues are sponsoring here.

Senator CHAFEE. We were working with some definitions already, admittedly vague, but that's what happens when you work on a bill and try to define what exactly is to be covered. It isn't as good as working with the specific maps themselves. So I, for one, will be following this very closely because it is really where the heart of the legislation lies.

Could you give us your thoughts, Mr. Secretary—they are touched on in your testimony—about whether you consider this bill an infringement on anybody's private property rights?

Secretary WATT. Mr. Chairman, we do not consider it to be an infringement on private property rights in that I think it has been artfully crafted to allow a private property owner to do anything that he wants with his land. He can even do some things that many of us would frown at. But he must bear the cost and endure the risks and not pass those risks on to the rest of our taxpayers. I do not think it is land use planning. I do not think it encumbers his constitutional rights to enjoy his property. It just removes the possibility of Federal subsidies for his private use of that land, and I think that is a positive and good step.

Senator CHAFEE. What about the suggestion that this legislation is unnecessary because we have the Coastal Zone Management Act on the books? Or the other charge that this legislation supplants the Coastal Zone Management Act?

Secretary WATT. We don't share that view. We think it is an addition. The Coastal Zone Management Act has a purpose and role. We think it ought to be continued. We are not seeking any amendments or changes to that. We think this is a different program that eliminates unneeded subsidies and undesirable subsidies that have many ramifications. And we don't see that there is a conflict or supplement. We think it is something separate and distinct.

Senator CHAFEE. Am I accurate when I suggest that the Coastal Zone Management Act is by the States and in no way touches Federal subsidies for roads, sewer plants, or bridges. You could have all the Coastal Zone Management Acts in the world but it wouldn't affect the Federal Government coming in and building a bridge. Is that correct?

Secretary WATT. That is right. The Coastal Zone Management Act requires that there be consistency with Federal actions that might impair those coastal zones. Those provisions need to continue within the State planning concept, and this bill does not do any violence to that. In fact, it would continue the responsibility of the private landowner to be consistent with those State plans.

Senator CHAFEE. So if this legislation were passed, the Coastal Zone Management Act is still there. If a State wanted to avail itself of it, they are perfectly free to do so. Isn't that so?

Secretary WATT. That is our understanding and believe it should be that way.

Senator CHAFEE. Senator Stafford, do you have any questions?

Senator STAFFORD. Thank you very much, Mr. Chairman. I do have one question.

I am in agreement with what all of the witnesses, including our distinguished Secretary, have said on this particular bill. I noted in your statement, Mr. Secretary, an indication that there was evidence that the waters of the oceans were rising at the rate of about

1 foot per 100 years. Either yesterday morning or this morning, I noticed a story in one of our leading newspapers indicating a group of scientists have found that the waters of the ocean are now rising at the rate of one-half inch a year and that there has been a very large melt of Antarctic polar ice. Should this be true, should their estimates be accurate, it would mean a 1-foot rise in the ocean levels in just 24 years. It would appear to be that would be an additional hazard, if that is so, to the barrier islands, developed and undeveloped. Would you agree with that?

Secretary WATT. I guess I am glad I live on the Continental Divide.

Senator STAFFORD. It occurred to me, Mr. Secretary, one reason I joined in this bill was to make sure Senator Chafee had a place to retreat to if the water does come up that fast. Have you examined any evidence that would indicate that the oceans are rising that much faster due to melt in the Antarctic and possibly at the Arctic also?

Secretary WATT. Senator, I read the same article you did and was amazed. I don't know anything to add to that. The oceans are shifting these islands all the time, and there is a real hazard there.

Senator STAFFORD. It would certainly increase the hazard as far as the nondeveloped barrier islands, wouldn't it?

Secretary WATT. Yes.

Senator STAFFORD. Thank you.

Thank you, Mr. Chairman.

Senator CHAFEE. Thank you, Senator Stafford.

Senator Gorton, do you have questions?

Senator GORTON. I have no questions, Mr. Secretary, but I would like to commend you for your support of this bill. I think your testimony has been both enlightening and helpful and properly balanced the public and private interests in the subject, and I greatly appreciate it.

Secretary WATT. Thank you, Senator.

Senator CHAFEE. Mr. Secretary, I would like to get back to this definition and the map situation because that is really where everything lies. In your statement you say: "We need to conform S. 1018 to the provisions of the Reconciliation Act in determining which coastal barriers will be affected," and so you are proceeding under the Reconciliation Act, namely, the flood insurance, you are proceeding to draw those maps. Am I correct there?

Secretary WATT. That is correct.

Senator CHAFEE. Did I hear August as the time you will be ready, August 1982?

Secretary WATT. Yes; we hope to have the final work basically done by then. I want to start within the next few weeks having private conversations with you and others, including Governors, about the definitions and the maps. We want to go to the Federal Register and set forth the process for involving the public in it, and we want to provide to Congress by August 1982 the results of this public study and the proposed designations so we have the actual maps and definitions to proceed to Congress in 1982, then months from now.

Senator CHAFEE. Where does that leave us, in your judgment, on proceeding with this legislation? Being realistic, I don't think, in this calendar year, we are going to have this legislation passed. But it would be my hope we could bring this from the subcommittee and the full committee to the floor, let's say, early next year, say, in February, March. And we really can't wait for August. Frankly, I suspect that we may well be gone from here, 1982 being an election year. I anticipate we will get out somewhat earlier hopefully than we do in the odd years.

Secretary **Watt**. Mr. Chairman, I think that time schedule is a good one and we can meet that. We will have the draft maps which can make this meaningful by mid-January, and we will have closed our comments for the definitions on undeveloped islands by March, March 15. And by that time you and this committee and Members of Congress will have a degree of confidence in what we are doing, or lack of confidence, and you may want to legislate your own definitions. I call with me a platoon of suspicion who think ill of everything that we are doing.

Senator **Chafee**. I am not subscribing to that at all.

Secretary **Watt**. No; but I want to show why I am taking an offensive posture. I want to show to you we mean business in this matter with our definitions, and maps, and the programs that we have for preserving these undeveloped barrier islands. We will have that basic picture for you by the winter, January, February, March, and you can make your own judgments. And then if the definitions which we are developing under the act, Reconciliation Act, meet with your approval, we can go ahead with that. If they don't meet with your approval, you will need to put your own definition in this bill and make it as strong as you wish. This gives you the flexibility to judge how we are doing in moving an aggressive program to protect these barrier islands.

Senator **Chafee**. I find that schedule acceptable. Obviously, we just can't wait too long. When you say March, you are getting to the outside of our schedule here because of the problems with legislation here, and, of course, the schedule in the House as well. But I take it that what you are saying, although we both recognize definitions are a vital part of the bill, I think it is clear from your testimony today that you support the concept and the philosophy of this legislation.

Secretary **Watt**. Absolutely.

Senator **Chafee**. I am not going to join any who are prepared to view with suspicion what you might be coming forward with. I want to see what you come forward with and will take it from there. I, personally, urge you very strongly to tilt on the side of the environment in this issue because, as you so wisely pointed out in your testimony, these islands are extremely important to the Nation for a host of reasons, and we have seen them disappear at a rate that is shocking. I think in your own testimony you pointed out about the loss of houses in Long Island. Yet more and more vulnerable areas are rebuilt after a storm. For example, Westhampton Beach on Long Island was hit by a 1938 hurricane, which I well remember because of the destruction it did in my State. This hurricane destroyed all but 23 of 179 homes. By 1980, more than 900 new homes had been built on the same coastal barrier. And I suspect every single one of them has Federal flood insurance.

Secretary **Watt**. They ought to if they don't.

Senator **Chafee**. I am sure they are all asking for new bridges, and sewage plants, and everything else.

So this committee will work closely with you, Mr. Secretary, on that.

Secretary **Watt**. Thank you.

Senator **Chafee**. Thank you very much, Mr. Secretary, for coming here today. We appreciate your testimony and look forward to working with you.

Secretary **Watt**. Thank you.

[Views on S. 1018 by the Department of the Interior, Department of Transportation, and the Department of the Army follow:]

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

FEB -2 1982

Honorable Robert T. Stafford
Chairman, Committee on
Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

This responds to your request for our views on S. 1018, a bill "To protect and conserve fish and wildlife resources, and for other purposes."

We do not object to enactment of S. 1018, amended as suggested in this report.

Background and need

The barrier islands along the Atlantic and Gulf Coasts are subject to severe erosion by wind, waves, and storms. Actions and programs of the Federal Government have encouraged development on these islands. When erosion and storm damage have occurred the government has spent substantial amounts of money for disaster relief, projects to stabilize the islands, and national flood insurance.

While they are hazardous and expensive for human habitation and development, coastal barriers are excellent habitat for fish and wildlife, and they provide open space and opportunity for public recreation. They create and maintain wetlands and estuaries which nurture vital fish stocks important for commerical and recreational fishing. It is estimated that during some stage in their life history, perhaps as much as 90 percent of all fish caught on the Atlantic and Gulf Coasts are dependent upon the wetlands which lie behind these geological structures. Coastal barriers and adjacent wetlands provide migration and wintering habitat for migratory waterfowl, shorebirds and raptors, as well as breeding habitat for shore and wading birds. In addition, more than 20 endangered species depend on coastal barrier habitats. For example, sea turtles, all of which are endangered, are totally dependent upon the beaches of coastal barriers as nesting sites.

Millions of people live, work, and vacation on coastal barriers. In fact, over 25 percent of the Nation's population lives within 100 miles of the Atlantic and Gulf Coasts. Coastal barriers are central to American life either through direct use and enjoyment or indirectly because they provide habitat to a wide variety of species that disperse to many parts of the nation and benefit large numbers of people.

We believe that legislation along the lines of S. 1018 presents an opportunity for substantial savings in direct and indirect Federal expenditures, and at the same time recognizes the environmental and recreational values of these unique land forms.

Provisions of S. 1018

S. 1018 establishes a Coastal Barrier Resources System, comprising undeveloped barrier structures on the Atlantic and Gulf Coasts of the United States. With respect to these barrier structures, section 5 of the bill prohibits new Federal expenditures and new Federal financial assistance, including construction or purchase of structures, roads, bridges, shoreline stabilization, and the sale of flood insurance policies with respect to structures the construction or substantial improvement of which is commenced after enactment.

Section 6 sets forth exceptions to the general prohibition on new expenditures and assistance, the first exception being for the exploration, development, production, or transportation of energy resources which can only be carried out in coastal areas. Because of the national need to reduce our dependency on foreign energy sources, we believe any coastal barrier program must allow exploration for, and extraction and transportation of, oil and gas, especially from the Outer Continental Shelf areas. Exceptions are also made for structures already in place, military activities, air and water navigation aids, projects undertaken for outdoor recreation, projects for fish and wildlife protection and enhancement, appropriate scientific research, and emergency actions essential to saving life and property.

The bill directs the Office of Management and Budget to certify annually to the Congress that the prohibitions on Federal expenditures and assistance are being complied with by each affected agency, and it directs the Secretary of the Interior to report to the appropriate Committees of Congress after 3 years and after 5 years on the resources of individual coastal barriers and similar structures. Section 11 of the bill authorizes the appropriation of $1 million for each of the fiscal years 1982 through 1986 for carrying out the reporting requirements.

Recommendations

We have the following specific comments and concerns respecting S. 1018, which we recommend be considered by your Committee:

1. Flood insurance. This issue has already been addressed by the 97th Congress. Section 1321 of the National Flood Insurance Act of 1968 (42 U.S.C. 4028), as added by section 341 of the Omnibus Budget Reconciliation Act of 1981 (P.L. 97-35; 95 Stat. 418) will prohibit the sale of Federal flood insurance for new construction or substantial improvements of structures on undeveloped coastal barriers after October 1, 1983. Under this provision, the Secretary of the Interior is responsible for designating undeveloped coastal barriers where new flood insurance coverage will be restricted. We believe the designation of undeveloped coastal barriers under S. 1018, and the provisions of S. 1018 specifically addressing flood insurance, should be conformed to this provision. We have included, in the enclosed suggested amendments, language that would provide that the designation of undeveloped coastal barriers made by the Secretary under section 1321 will be the basis upon which the Coastal Barrier Resources System is established. This use of a single definition and designation process for both Acts will avoid needless duplication of effort, as well as possible inconsistencies in such designation. We look forward to cooperating with the Congress throughout the designation process.

2. Reports to Congress. Section 10 of S. 1018 would require the Secretary to submit to the Congress two reports on System units--one within three years, and

another within five years, after enactment of the Act. Section 11 would authorize annual appropriations of $1 million for each of five fiscal years to carry out section 10. We believe that these reports are unnecessary. The process this Department has already initiated in order to designate undeveloped coastal barriers under the Flood Insurance Act is designed to provide a well-researched basis for such designations and extensive opportunities for Congressional and public participation. In addition, section 4(c) of S. 1018 would, with our proposed amendments, provide both continuing authority for the Secretary to make minor modifications to the boundaries of the System and a process through which the Congress is notified of such modifications. In light of this, we believe that the reports required by section 10 would be an unnecessary administrative and fiscal burden. We also believe that section 7 of S. 1018, which requires the Office of Management and Budget to certify to the Congress annually that Federal agencies have complied with the Act, would impose a similar unnecessary burden. We therefore recommend that sections 7, 10, and 11 be deleted from the bill.

3. Technical and clarifying changes. We have attached additional amendments which we believe are necessary to clarify certain provisions of the bill.

Conclusion

In summary, the benefits of the policy embodied in this legislation are clear. The fish and wildlife and recreation values of these unique landforms can be conserved, and substantial Federal expenditures can be saved. While it is difficult to quantify, there can be no question that Federal investments have stimulated and facilitated development of storm-prone coastal barriers. The best available estimates during the period beginning with fiscal year 1976 through fiscal year 1980 would indicate that more than a billion dollars was spent by the Federal Government to aid development on coastal barriers, and that many of these expenditures are not one-time costs. Taxpayers subsidize development, a hurricane sweeps an area, and the government assists, even encourages, rebuilding. The Reconciliation Act and S. 1018 chart a sensible course for preventing this cycle from recurring, one that will conserve both tax dollars and natural resources.

The Office of Management and Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

SECRETARY

Enclosure

SUGGESTED DEPARTMENT OF THE INTERIOR AMENDMENTS TO S. 1018--COASTAL BARRIER RESOURCES SYSTEM

1. On page 4, line 4, after the comma insert "portion or portions thereof,".

   Many of the undeveloped barrier areas are part of a larger barrier unit which includes protected as well as developed areas.

2. On page 4, line 8, strike out "(1)".

   On page 4, strike out lines 10-14 and insert in lieu thereof the following:

   > those undeveloped coastal barriers located on the Atlantic and Gulf coasts of the United States as are designated by the Secretary under section 1321 of the National Flood Insurance Act of 1968 (95 Stat. 419; 42 U.S.C. 4028). Upon final designation of such coastal barriers, the Secretary shall publish notice of such designation and of the availability of maps depicting such designation in the Federal Register. Establishment of the System shall be effective upon the date of such final designation, or the date of the enactment of this Act, whichever is later.

   On page 4, strike out line 15 and all that follows through page 5, line 2.

   On page 5, lines 4, 10, and 18, strike out "paragraph (1) of".

   On page 5, lines 8 and 9, 15, and 20, strike out "date of the enactment of this Act" and insert in lieu thereof "date of the establishment of the System".

   On page 5, line 17, insert before "boundaries" the following: "designation of undeveloped coastal barriers under section 1321 of the National Flood Insurance Act of 1968 and the".

   These amendments would provide that the designation of undeveloped coastal barriers made by the Secretary under section 1321 of the National Flood Insurance Act of 1968 will be the basis upon which the Coastal Barrier Resources System is established. This use of a single definition and designation process for both Acts will avoid needless duplication of effort, as well as possible inconsistencies in such designation. The amendments would permit the minor boundary modifications contemplated under S. 1018 to be made in the designation under section 1321, thus assuring continuing conformity between the two Acts.

3. On page 5, after the period in line 20, insert the following:

   > Thereafter, the Secretary shall periodically, but not less than once in every five years, update the designation and maps referred

to in subsection (a) of this section, solely to reflect any changes in the size or location of the coastal barriers involved.

This amendment recognizes the dynamic nature of coastal barriers. As new lands are continually added to these structures and other areas are eroded, the designation under section 1321 of the National Flood Insurance Act of 1968 and the maps referred to in this legislation will be amended to reflect these changes.

4. On page 6, strike out lines 18-22 and insert in lieu thereof the following:

   (4) the sale of flood insurance policies under the National Flood Insurance Act of 1968 (42 U.S.C. 4001 et seq.), effective as provided in section 1321 of that Act.

   This amendment would assure that the flood insurance provisions of S. 1018 are consistent with section 1321 of the National Flood Insurance Act of 1968, as added by section 341 of the Omnibus Budget Reconciliation Act of 1981.

5. On page 7, line 14, strike out "The exploration, development, production" and insert in lieu thereof "Any use or facility for the exploration, extraction".

   This amendment would clarify the intent of the legislation that oil and gas extraction be permitted, but that structures such as refineries pose the significant danger of loss of oil and gas and damage to the barriers. We believe that, based on the purposes of this legislation, such structures on barriers are inappropriate.

6. On page 8, line 10, insert after "lands" the following: ", and for related recreation".

   This amendment would clarify that provision for public recreation would not be precluded by S. 1018.

7. On page 8, line 22, insert the following after the period: "Such actions shall be limited to the minimum necessary to alleviate the immediate emergency."

   This amendment will assure that the exception for emergency stabilization actions will be the minimum necessary, and not used as justification for major projects that exceed the scope and impacts of the true emergency.

8. On page 9, line 18, strike out "State".

   On page 9, lines 20-21, strike out "occupy the field in which the Act operates to the exclusion of" and insert in lieu thereof "change the existing relationship of other Federal laws to".

   On page 9, lines 22-23, strike out "on the same subject matter,".

   This amendment would assure that S. 1018 will not disturb the current, delicate balance between other Federal laws operating with regard to coastal barrier areas (such as coastal zone management or outer continental shelf programs) and State and local laws. It would also clarify that S. 1018 is not intended to preempt State or local laws unless there is a direct and positive conflict. Thus, State and local governments would be free to take additional measures, consistent with Federal law, to control their coastal resources.

Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

General Counsel

The Honorable Robert T. Stafford
Chairman, Committee on Environment
and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

The Department of Transportation has reviewed S. 1018, a bill establishing a Coastal Barrier Resources System, which is currently pending before your Committee. The Department generally supports and endorses the aims of S. 1018 with the following comment.

The bill, as presently drafted, could preclude the necessary construction maintenance of essential Coast Guard facilities on coastal barrier locations. The Coast Guard currently maintains multi-mission stations and limited associated housing for personnel in areas which may be included in the coastal barriers resources system. These facilities are generally self-contained installations which have minimal impact on the islands and are consistent with the purposes of the bill. Continued maintenance and improvement of some of these facilities would be allowed under exceptions for military activities and aids to navigation, contained in section 6(a) of S. 1018. However, other essential Coast Guard facilities, such as search and rescue stations are not covered by this exception. In order to assure that the Coast Guard can continue to operate, maintain and improve these facilities, we recommend creating an additional exception to Section 6 of S. 1018, as follows:

> "(vii) The construction, operation, maintenance, and rehabilitation of Coast Guard facilities and access thereto."

The Office of Management and Budget has advised that there is no objection from the standpoint of the Administration's program to the submission of this report for the consideration of the Committee.

Sincerely,

John

John M. Fowler

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, D.C. 20310

2 FEB 1982

Honorable Robert T. Stafford
Chairman
Committee on Environment and
  Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

In his October 21, 1981 testimony on S.1018, 97th Congress, before the Subcommittee on Environmental Pollution, Secretary of the Interior James Watt indicated that Federal agencies affected by the bill would be providing legislative reports on the bill including some suggested amendments. This report is in response to that pledge. The Department of the Army has been assigned responsibility for expressing the views of the Department of Defense on the proposed legislation.

If enacted, the bill would establish the Coastal Barrier Resource System (System) consisting of undeveloped coastal barriers located along the Atlantic and Gulf Coasts and would restrict use of new Federal financial assistance to develop any coastal barrier comprising a part of the System. The bill also contains exclusions of specific activities which may be undertaken using Federal funds, some of which require a finding of consistency with the purposes of the proposed legislation. The bill also provides for a report to the Congress by the Secretary of the Interior on the System to be established.

The Department of the Army, on behalf of the Department of Defense, generally supports efforts to reduce wasteful Federal expenditures to develop undeveloped barrier islands and other coastal formations which are not geologically suitable to sustain such growth. Accordingly, we support the basic objectives of the proposed legislation. Any restrictions on Federal expenditures, however, should not impede necessary worthwhile Federal programs which are not intended to, and which ordinarily do not, promote unwarranted development of natural areas. S.1018, as well as H.R.3252, appears to strive for a reasonable balance between the desire to limit unwarranted federally assisted development and the need to use efficiently our coastal resources. For example, the bill does not impose limitations on Federal approval authority such as the Corps of Engineers' permit program under Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act. We welcome this less restrictive approach. However, we do have a number of recommendations on ways that the bill should be amended to better accomplish this approach. Accordingly, we recommend the following amendment to the bill:

a. Section 6(a)(2) should be clarified to allow operation, maintenance and rehabilitation, of existing channel improvements and related structures. Furthermore, limiting all channel improvement work to maintenance of existing projects could preclude worthwhile projects designed to benefit commerce which are not intended to promote development of barrier areas. Accordingly, we recommend adding a new subsection (a)(4)(vii) to allow necessary construction, operation and maintenance of new channel improvements adjacent to barrier areas where such improvement is consistent with the purposes of the Act and designed and executed so as not directly to encourage or facilitate development of coastal barriers.

b. We recommend that Section 6(a)(3) be amended to insure that all military activities deemed essential to national security by the Secretary of the military department concerned, including the erection of permanent structures such as surveillance equipment, not be precluded. Such national defense use of undeveloped, limited access coastal sites is fully compatible with the desire to limit development of these areas. As required by this section, we would consult with the Secretary of Interior on any use of this authority.

c. We recommend that Section 6(a)(4)(v) be amended to allow emergency assistance undertaken pursuant to Section 5 of the Flood Control Act of 1941 (55 Stat. 638; 33 U.S.C. 701n), as amended, for areas within the System. Over the years, this program has proven to be very effective in preventing serious flooding damage during periods of emergency and its use in System areas should not be restricted. We would limit the use of this authority to temporary assistance necessary to alleviate immediate emergencies.

d. The Department of the Army feels that the individual agencies are fully capable of complying with the provisions of the proposed legislation and the Congress is fully capable of monitoring compliance through its oversight function. Therefore, we view Section 7's requirement for Office of Management and Budget certification of compliance as unnecessary and recommend deletion of this provision.

e. We recommend that Section 10(b) of the bill be amended to require the consultation with affected Federal agencies prior to submission of the report to the Congress to insure consideration of the views of the agencies concerned. Similarly, under Section 4(c), we feel that the Secretary of Interior should be required to consult with affected Federal agencies prior to making boundary modifications to insure that developed areas or Federal activities are not included within the System.

As an aid to consideration of these proposals we are enclosing a draft of amendments to S.1018 to accomplish these objectives.

Subject to incorporation of these amendments, the Department of the Army, on behalf of the Department of Defense, would interpose no objection to its enactment.

This report has been coordinated within the Department of Defense in accordance with procedures prescribed by the Secretary of Defense.

The Office of Management and Budget advises that, from the standpoint of the Administration's program, there is no objection to the presentation of this report for the consideration of the Committee.

Sincerely,

WRGianelli

Enclosure

William R. Gianelli
Assistant Secretary of the Army
(Civil Works)

DEPARTMENT OF THE ARMY

PROPOSED AMENDMENTS TO S. 1018

1. On page 5, line 16, strike "Secretary" and insert in lieu thereof "Secretary, in consultation with other affected Federal agencies."

2. On page 7, line 17, strike "the maintenance of" and insert in lieu thereof "The operation, maintenance, and rehabilitation, but not the expansion, of".

3. On page 7, line 19, strike "spoils" and insert in lieu thereof "materials".

4. On page 7, strike lines 21 and 22 and insert in lieu thereof

> "(3) Military activities, including construction, operation, maintenance or rehabilitation of military facilities, deemed essential to national security by the Secretary of the military department concerned; and"

5. On page 8, line 18, insert the words "section 5 of the Flood Control Act of 1941 (33 U.S.C. 701n), as amended," in front of the word "sections".

6. On page 9, after subsection (a)(4)(vi) insert the following:

> "(vii) the construction, operation, maintenance and rehabilitation of new channel improvements and related structures, such as jetties, and including the disposal of dredged materials related to such improvements if such improvements or structures are not planned or implemented so as directly to encourage or facilitat development of Resources System and that such dredged materials are disposed of in a manner consistent with natural processes on such barriers."

7. On page 9, delete section 7 and renumber the succeeding sections accordingly.

8. On page 10, line 14, delete "Secretary" and insert in lieu thereof "Secretary, in consultation with other affected Federal agencies."

Senator Chafee. Now we are going to have a panel consisting of Laurance Rockefeller of Americans for the Coast and Dr. Jay Hair, executive vice president of the National Wildlife Federation.

Dr. Hair, it is a pleasure to see you again. You certainly have been a forthright spokesman in this area. And Laurance Rockefeller, I guess you have been the leading civilian to help in this effort, and you have assembled a very distinguished committee under the banner of Americans for the Coast. So, Mr. Rockefeller, why don't you lead off. We are glad you are here.

STATEMENTS OF LAURANCE ROCKEFELLER, AMERICANS FOR THE COAST, AND JAY HAIR, EXECUTIVE VICE PRESIDENT, NATIONAL WILDLIFE FEDERATION

Mr. Rockefeller. Thank you, Senator, for the opportunity to testify on behalf of Americans for the Coast. Our national committee was formed by 90 leaders in business, labor, and civic affairs to win protection for the Nation's undeveloped barrier islands. We believe that the legislation, S. 1019, which you have authored, Mr. Chairman, is a giant step toward this goal.

We commend you for your leadership and applaud the 19 Senators who already have joined as cosponsors. We are pleased to note that they span the political spectrum and include respected conservatives like Senators Simpson and Roth—a fact which parallels the presence in our ranks of William F. Buckley, Jr.

We welcome the administration's support of the bill's goal, announced by Secretary Watt just now, and hope its forthcoming definition of which islands should be protected will be an expansive one.

At the time of the bill's introduction, another American for the Coast, Robert S. McNamara, summarized the reasons why we strongly support enactment of the Coastal Barrier Resources bill:

> This legislation will curtail the costly federal subsidies which promote hazardous development on America's remaining unspoiled barrier islands, and as a result, it will save lives, taxes and a critical national resource.

The American Red Cross emphasizes the need for this legislation. As stated by its vice president for disaster services:

> The tragic vulnerability of barrier islands development to storm and sea—the National Hurricane Center terms them "death traps"—argues for a change in the present federal policy which has inadvertently encouraged many people to build on these extremely hazardous coastal sites.

Barrier island residents are particularly vulnerable to the storm surge that accounts for 9 out of 10 hurricane-related deaths—and also claims lives in fierce winter northeasters. With escape routes cut by fast-rising sea levels, they confront a massive dome of water driven by wind and low pressure and itself topped by waves, which may extend 50 miles at landfall and raise sea levels 30 feet above mean tide. That is what happened, for example, along the gulf coast during Hurricane Camille in 1969, which killed 256 coastal residents.

The potential for a major human disaster becomes clear when one considers the low elevation of all barrier island development. For example, 60,000 new residents of southwest Florida near

Tampa live on barrier islands at an average height of 5 feet above sea level.

In fact, since 1900, when 6,000 persons died on Galveston, a Texas barrier island, the toll has mounted. Yet we have not learned. As we have seen at the hearing so far, where buildings were knocked down, they are being rebuilt, including just north of Galveston on Padre Island where condominiums are being built atop filled-in cuts made by Hurricane Beulah in 1967 and near overwash zones of Hurricane Allen in 1980.

The question before Congress is: Should this cycle of construction, disaster, and reconstruction continue to be underwritten by the Federal Government on the undeveloped barrier islands? We believe it should not.

By its subsidy curtailment, the Chafee-Evans bill indirectly will shift some coastal development to safer mainland areas. To the extent that presently undeveloped barrier islands remain undeveloped, the legislation will protect essential wildlife habitat, spectacular scenery, and outstanding recreation opportunities for the future. We agree with the National Wildlife Federation that the opportunity to conserve this critical resource should be realized—and soon, for the islands are urbanizing at twice the national rate.

I might interject, Mr. Chairman. For that reason, we are concerned about the 2-year delay in the law becoming effective. If your bill should happen to be made to conform to the Budget Reconciliation Act, which does not take effect until October 1983, a good deal of hazardous development could take place during that time.

Senator **Chafee**. Well, I share with you your concern. If I had had my way, we wouldn't have had that delay, but let's see how we go along here.

Mr. **Rockefeller**. 2,000 years ago, Jesus warned us in His Sermon on the Mount that only fools build on sand. Well, today they are still at it, on our barrier islands—only now it is at taxpayer expense.

Understandably, the taxpayers have grown restless and want this burden lifted. As articulated by Howard Jarvis, in his usual understated way:

> It's time to end this outrageous federal boondoggle! Why waste our taxes to chop up islands and risk lives?

Speaking for the National Taxpayers Union, its legislative director, David Keating, stated:

> People who insist on building in such hazardous areas should no longer be able to do so at taxpayer expense—and the Chafee-Evans bill assures that they will not, at least in presently undeveloped island areas.

As Secretary Watt pointed out, the savings to the Federal taxpayers which your bill would realize over a 20-year period would range from $5 to $11 billion. This amounts to an average subsidy avoided of $27,000 per acre up to $45,000 per acre.

The case for ending this subsidy seems even more compelling when one considers that it benefits mainly the affluent. As noted in a May 24 article in the Myrtle Beach, S.C., Sun News: "Barrier Island Homeowners," it said:

> Are among the wealthiest of Americans. Detailed buyer profiles conducted by the three local communities (Kiawah Island, Seabrook Island, and Isle of Palms) say the

average buyer is in his mid-forties, for an annual income exceeding $90,000, and with a net worth in the $250,000 range.

The price of a beach-front lot on Seabrook Island—which, incidentally, was submerged under 20 feet of water in an 1893 hurricane—is $225,000, for one-quarter acre. While lots on other islands sell for less, a question of equity remains: Is it fair to ask the American taxpayer to keep down the purchase price of beach-front lots for a select few? At a time of widespread cuts in basic Government services, can a subsidy for second homes and condominiums by the sea be justified?

Moreover, these Federal subsidies do not end once the island infrastructure and buildings are in place, but extend to their reconstruction. For example, the bridge to Dauphin Island, Ala., the key to its original development, was destroyed in 1979 by Hurricane Frederick and is being rebuilt at a cost to the Federal taxpayer of $39 million—or an average of $24,375 for each of the island's 1,600 full-time residents.

Your bill also addresses the loss which occurs from erosion, a gradual one, and we applaud that and note many islands have moved dramatically. Some have disappeared entirely.

On coastal management, your bill, we believe, respects the Coastal Zone Management Act and neither duplicates nor conflicts with it.

Under that law, States and localities are encouraged to guide coastal land development and use their zoning authorities—a matter from which the Chafee-Evans bill stays clear. The bill would complement the existing Coastal Act, however, by reducing the immense pressures for unwise development which the availability of heavy Federal subsidies have generated on barrier islands—often overwhelming State and local planning efforts.

This consideration was important to the Department of Commerce, the agency which administers the coastal zone program, in deciding to support the Chafee-Evans bill. In a May 29 memorandum to the Cabinet Council Task Force on Barrier Islands, the Department declared:

> We believe the states will support legislation to limit such unwise subsidies because it will assist them in making desirable, but potentially controversial, long-term decisions concerning the development of their coasts. A recent resolution passed by the Coastal States Organization states that "federal funding assistance that supports and stimulates development of undeveloped barrier islands and beaches should be eliminated."

The Chafee-Evans bill, moreover, would not affect the continued authority, albeit largely unexercised, which States have under the consistency clause, section 307, of the Coastal Zone Management Act: to deter Federal permitting which conflicts with approved State coastal plans.

Let it be recognized, however, that with recent budget cuts in the Federal coastal program and its uncertain future, States will receive even less Federal planning funds and hence have less incentive to honor even the modest Federal standards for conservation which are conditions to the funds' receipt.

In fact, three coastal States—Virginia, Georgia, and Texas—are not subject to those standards at all, because they have chosen not to participate in the Federal coastal program. As noted in the same

Department of Commerce memorandum, the three States contain more than one-third of both the total acreage and beach mileage of the undeveloped barrier islands.

The Coastal Zone Management Act, in other words, has no effect on one-third of the undeveloped barrier resource. These islands would be affected, however, by the Chafee-Evans bill. Their inclusion is appropriate, for it belongs to the Federal Government to decide what Federal expenditures shall be made and where the savings shall be made.

In conclusion, we believe that the sooner the Chafee-Evans bill becomes law, the greater will be the savings in lives, taxes, and a critical resource. With this incentive in mind, we encourage you to mark up the legislation this fall; to ratify the flood insurance cutoff and speed its effective date; and to seek early approval by the full Senate.

Please count on our full support.

Thank you.

Senator CHAFEE. Thank you very much, Mr. Rockefeller. And I want to congratulate you for the work you have done for Americans for the coast, with this very distinguished group of members of the national committee.

Dr. Hair, glad you are here and I look forward to your testimony. Why don't you proceed.

STATEMENT OF JAY D. HAIR

Dr. HAIR. Thank you, sir.

As executive vice president of the National Wildlife Federation, I am delighted to be here. Also with me is Sherry Newsome, who is a resource specialist on our staff.

Senator CHAFEE. Nice to see you, Ms. Newsome.

Dr. HAIR. We want to thank you for your leadership in introducing this legislation and holding these hearings, Senator. We appreciate your work in particular and that of the other cosponsors in bringing this important issue before the Congress and public.

As you are well aware, the National Wildlife Federation is composed of affiliates in all 50 States, Guam, Puerto Rico, and the Virgin Islands. We have a membership of over 4.5 million persons concerned with the wise use and conservation of our Nation's natural resources.

I appreciate this opportunity to testify before the committee on the pending legislation, S. 1018, the Coastal Barrier Resources Act, because it will foster the conservation of coastal barriers and important fish and wildlife resources. Also, I have a personal and professional interest in this. Prior to becoming a chief executive officer of the National Wildlife Federation, I was involved in research in coastal barriers in both the State of North Carolina and South Carolina.

I have a statement I would like to submit for the record, and I would like to summarize some key points in that statement.

Senator CHAFEE. Fine.

Dr. HAIR. Barrier islands and their beaches are unusual landforms. These long, low, sandy strips of land off the Atlantic and gulf coasts are constantly on the move. The paradox of barrier islands is that they must be in constant flux to remain in equilibrium with the immense power of the ocean. They cannot, as we would like, remain immobile in the face of incessant waves, storms and rising sea level.

The greatest demand for barrier island development is on primary dunes. Leveling a dune for construction eliminates the sand replenishing function of the dune and, again, accelerates island erosion. Dunes are very fragile. In some cases, mere foot travel can sometimes cause their destruction.

Development can also harm the inland shrub and maritime forest, not only by leveling the trees and vegetation which hold the island together, but also by overutilizing the ground-water supply. Communities using the freshwater supplies of an island will draw down the freshwater table, allowing saltwater to intrude in the water aquifer. Resident plant species of the inland forest, unable to tolerate a switch to saltwater, will die.

Finally, development inevitably brings with it the dredging, dumping, filling, and polluting of essential marsh areas, rendering them useless and sometimes deadly to finfish and shellfish. According to a draft report of the Heritage Conservation and Recreation Service on barrier islands, between the period 1950 and 1974 slightly more than 137,000 acres on barrier islands were added to the urbanized category, while nearly that many were removed from the wetland category.

The unique nature of barrier islands and beaches has also created unparalleled, unique ecosystems for fish and wildlife habitat. Threatened and endangered species such as loggerhead turtles, bald eagles, brown pelicans, and sea oats are found there. Migrating birds and waterfowl use the islands, bays, and marshes as resting and feeding areas. Up to 80 percent of the most important sport and commercial fish and shellfish species depend on the estuaries and wetlands provided by the islands and beaches for some part of their life cycle. In 1980, $669 million was paid to Atlantic and gulf coast commercial fishermen for estuarine-dependent fish species alone. Like the islands themselves, these fish and wildlife resources are dependent on the healthy functioning of the island's natural processes.

Barrier islands and beaches also provide significant recreational resources. More than 25 percent of the U.S. population lives within 100 miles of a barrier island. They use them for a wide variety of activities.

The importance of barrier islands and beaches as storm buffers for the mainland and the economic value of their fish and recreational resources is unquestioned.

Yet some have argued that because some islands and some parts of coastal barriers are more stable than others that Federal policies should distinguish between the more and less hazardous. This ignores the dynamic interdependence of the coastal barrier ecosystem. As long as the system is left undisturbed, it or parts of it may remain relatively stable. Once trees are leveled and vegetation removed, roads built, and sewerlines laid, the dynamics of the entire ecosystem change. The trees and vegetation can no longer hold the sand together, the roads and sewerlines weaken the equilibrium between sand and water so that the island becomes less stable and unable to maintain its form and shape when battered by inevitable storms and hurricanes. Coastal barriers begin to disintegrate when we try to put permanent structures on them, destroying themselves and the dependent fish and wildlife habitat.

The flood damage from barrier island development is a particularly disturbing problem. The National Science Foundation says in its report on flood hazard mitigation that: "flood losses in the United States are grim, indeed, and are projected to increase." The Water Resources Council estimates that by the year 2000, $6 billion, in 1980 terms, will be spent on flood damages annually if flood-plain management standards improve. Without improved flood-plain management, the damages could rise to $8.7 billion annually. In the past and certainly in the future, even with the legislation before you today, barrier island development will continue to be a large part of those flood damages. A good example is Dauphin Island, Ala., where Federal expenditures to put the island back together after Hurricane Frederick passed over it in 1979 have mounted to $50,000 for each of the residences and total more than $45 million. While recognizing that a commitment has been made to these developed islands, we endorse S. 1018 because it says the Federal Government is not going to follow bad policy with even worse policy in the future.

To a large extent, the culprit in barrier island development is the Federal Government. With its subsidies, grants, and insurance programs, the Federal Government not only allows this destructive and often foolhardy development, but actually underwrites, encourages, and perpetuates it. According to the latest estimates, $750 million was spent between 1975–80 on infrastructure development on barrier islands. And we have attached some details to our statement. This is a constantly recurring expense. A study by the Texas Coastal and Marine Council found that: (1) installation of utilities to a barrier island cost more than for the mainland, (2) bridges and causeways to barrier islands are generally longer than for the mainland and therefore cost more, and (3) while roads on barrier islands do not appear to cost more, maintenance is substantially more than that for mainland roads.

Their conclusion was that it cost two to six times more to provide this infrastructure on barrier islands than on the mainland. When you add to that the inevitable costs of rebuilding the facilities after storms and hurricanes, the cost to the American people is enormous, and unnecessary.

By subsidizing the higher costs and greater risks associated with barrier island development, the Federal Government has interfered with the normal working of the market place.

A recent article in the Myrtle Beach, S.C., Sun News, also referred to earlier by Mr. Rockefeller, extols the money to be made in barrier island development, reporting that in a few hours of one morning the Kiawah Island Corp. sold $10.2 million in real estate. Two months later another $7.4 million was sold in less than a day. Company officials for three barrier island development corporations in Charleston County, S.C., said $310 million had been invested, mostly in the last 3 years, with the expectation that in the next 8 years the investment will reach $1.1 billion in 1981 dollars. This is for development of only three barrier islands. We believe the elimination of flood insurance for undeveloped barrier islands, as contained in the omnibus reconciliation bill, was a step in the right direction. We urge the committee to approve the Coastal Barrier Resources Act and eliminate the other enormously costly subsidies. This legislation will slow the development of barrier islands and beaches and reduce the number of lives at risk and conserve fish and wildlife resources.

We are glad to see the positive step taken by the subcommittee in holding hearings about his important segment of our country's natural resource base. S. 1018 recognizes that we must redirect Federal investments away from the shifting sands of coastal barrier islands. In times of fiscal austerity, there are better ways to spend Federal funds than on subsidized destruction of these fragile outposts.

In conclusion, Senator Chafee, I would like to say as one who has been an active and outspoken critic of many of the policies coming out of Secretary Watt's office in the Department of Interior, I am pleased that Secretary Watt and the Reagan administration are enthusiastically supporting legislation that eliminates Federal subsidies and removes the Federal Government from the private marketplace. The barrier island bill before you could be a page right out of the Reagan economic handbook. We are delighted to see that kind of positive policy statement coming out of his office.

That concludes our statement.

Senator CHAFEE. Thank you, Dr. Hair. I appreciate that testimony and the charts that accompany your testimony and the illustrations that you gave. I think those figures dealing with Myrtle Beach, S.C., and the Kiawah Island Corp., where they sold $10.2 million of real estate in a few hours, indicate that that is not exactly the low-rent district.

Dr. HAIR. That is correct.

Senator CHAFEE. Mr. Rockefeller, would you give us your thoughts on whether this legislation complements or preempts the Coastal Zone Management Act?

Mr. ROCKEFELLER. Mr. Chairman, I refer you to the fuller statement which I submitted to the record. On page 7, we say that, in brief, the Chafee-Evans bill respects the Coastal Zone Management Act and neither duplicates nor conflicts with it.

Senator CHAFEE. Excuse me, I missed that.

Mr. ROCKEFELLER. We believe your bill respects the Coastal Zone Management Act and neither duplicates nor conflicts with it. And I note that three States with a third of the barrier island resources——

Senator CHAFEE. Those are the ones you cited, Texas, Georgia, and Virginia.

Mr. ROCKEFELLER. Right.

Senator CHAFEE. What about the argument, Dr. Hair, if we pass this legislation, it might erode the tax base of the local communities? In other words, if we are not willing to build new Federal bridges onto some barrier islands, then the tax base of the local community might be eroded.

Dr. HAIR. I don't put a lot of validity in that particular argument. You recall one of the very important values of these barrier islands is to serve as an outlet for a variety of recreational activity.

This attracts people to recreate at them, which, of course, would enhance the local economies. Also, we must remember these are very important nursery grounds for a wide variety of commercial fisheries. Those are very important to the revenues of those local communities. If we, through further development of these barrier islands destroy those nurseries for shellfish and finfish, we are going to greatly impede economic development within those communities. So I don't think the particular legislation is a negative deterrent there.

Senator CHAFEE. What do you say to that, Mr. Rockefeller?

Mr. ROCKEFELLER. I agree that it does not affect the local tax base. I note on the islands that are developing or developed this bill has no application; and that even on the undeveloped islands construction can proceed, but at the risk of those who build it instead of the taxpayer. That is the difference.

Senator CHAFEE. I think that is an important point you make. I hope people will understand that where an area has already been developed, it would not meet the criteria of an undeveloped barrier beach. Thus, whatever Federal support can continue and Federal flood insurance can continue, even though subsequently a flood should wipe out a building, that does remove from the owner the opportunity to receive more Federal flood insurance. Whereas those areas where they are designated as undeveloped and there is a house, that house can continue to receive Federal flood insurance. Federal flood insurance isn't taken away. However, there is only one bite out of the apple. If that house should be damaged more than 50 percent, then the Federal Government will not provide Federal flood insurance for that house that is in the designated area.

What do you say, Mr. Rockefeller, to the charge that this discriminates against a particular section of the country because we are only dealing with barrier beaches and barrier islands, we are not dealing with other flood plains say of the Mississippi River or some other river, or areas that are particularly subject to, say earthquake zones, they can still get whatever Federal activities are available?

Mr. ROCKEFELLER. Well, I note the islands do stretch from Maine to Texas. Some people feel these are more in the South, but they are throughout those 17 States. I think the difference between the barrier islands and some of the areas you mentioned is that their uniquely hazardous nature, readily definable boundaries and isolation and limited acreage make them a special case for curtailing development subsidies.

Unlike a settlement on the Great Plains that might or might not ever been struck by a tornado—and that is a huge area—we know that these barrier islands will sooner or later be struck and damaged, with mathematical certainty.

Senator **Chafee**. Have you got anything to say about that, Dr. Hair?

Dr. **Hair**. Yes, Senator, let me make a few comments on that. One is that we must remember that a difference here in the distinction between barrier islands and inland floodplains, inland floodplains are quite frequently inundated for private homes and also for agricultural land adjacent to those floodplains. They are more vitally concerned with the needs of the American people. In looking at various subsidy programs, those would be looked at critically. We don't think they should be looked at in the light of this legislation. Let me give a specific example.

Most of the development on barrier islands is for secondary homes by affluent members of our society. A personal friend of mine who is in the construction business on Hilton Head Island in South Carolina, one of the most developed islands in the Southeast, told me just 2 weeks ago that an oceanfront lot on Hilton Head Island without construction, less than half an acre, was selling for $300,000. Homes on that would then escalate the property value somewhere in excess of a half a million dollars. We don't need to be subsidizing second homes for that kind of purpose. So I am not concerned that this bill does not address other kinds of Federal insurance subsidy programs on inland floodplains.

Senator **Chafee**. Mr. Gerald Peterson, who is the associate director of the National Weather Service, said that trying to predict the probability of a tornado striking a given point in an area most frequently subjected to tornados, you might hit it once in every 250 years, whereas hurricanes can be predicted to hit a particular area with the accuracy of once in 7 to 10 years, the point you were making, Mr. Rockefeller.

Gentlemen, we thank you very much for coming today and look forward to working with you further as we proceed.

Mr. **Rockefeller**. Thank you. You can count on it.

Dr. **Hair**. Thank you, Mr. Chairman.

Senator **Chafee**. Mr. James Scott from the National Association of Homebuilders.

STATEMENT OF JAMES SCOTT, NATIONAL ASSOCIATION OF HOMEBUILDERS, ACCOMPANIED BY SCOTT SLESINGER, ASSISTANT LEGISLATIVE COUNSEL, NATIONAL ASSOCIATION OF HOMEBUILDERS

Senator **Chafee**. Mr. Scott, we look forward to hearing your testimony. Who do you have with you?

Mr. **Scott**. Scott Slesinger with the National Association of Homebuilders.

Senator **Chafee**. Mr. Slesinger and Mr. Scott. I notice your testimony is of some length. Why don't you do the best you can to summarize and, of course, we will put is in the record. I tell you what, if you want to read your testimony, the others have read theirs, I am not attempting to cut you off in any manner. I just noticed it is rather narrowly spaced with eight pages. You proceed as you wish.

Mr. SCOTT. Thank you.

Mr. Chairman and members of the subcommittee, my name is Jim Scott. I am testifying today on behalf of the 123,000 members of the National Association of Homebuilders. I am the president of the Scott Co. on Hilton Head Island, S.C. We are a management-consulting firm involved with several development projects located in coastal areas. We have also been very active recently in an analysis of issues affecting the national flood insurance program.

Our coastal areas have been the subject of much debate in recent years. A commonly held position of some people involved in the discussion is that all coastal areas are unstable, fragile storm buffers for the mainland, entirely unsuitable for development. However, as any coastal geologist will tell you, the stability of a given coastal region and its suitability for development varies dramatically from one region to the next, from one State to the next, and indeed, from one section of beach to the next. Thus, while it is clear some coastal areas are not suitable for development, it is untrue that all coastal areas are not suitable for development.

To stop development on our coastal barriers, the Congress prohibited the sale of Federal flood insurance policies for designated barrier structures after October 1983. The proposal of Senator Chafee, S. 1018, would end all Federal assistance for roads, sewers, bridges, and flood insurance for designated barrier structures. Implicit in the argument for this legislation is the assumption that local and State government are incapable of developing land use plans that take into account the natural processes affecting these areas. There are, however, many excellent examples of sensitive land use planning along the coast. We in South Carolina are particularly proud of the way our coast has been developed in harmony with nature. This legislation, however, assumes localities are unqualified to adequately protect their environmentally sensitive areas.

A major reason expressed in support of this legislation is to save the Federal Government money in disaster assistance and in subsidizing insurance premiums. I would suggest, however, that restricting the availability of flood insurance will inevitably increase the overall cost to the taxpayer. This case is supported by a recent Government Accounting Office report. In the report entitled "Federal Disaster Assistance, What Should the Policy Be?" GAO points out that flood losses on uninsured property are tax deductible. Through a combination of tax deductions and Federal disaster assistance, an individual with an uninsured flood loss could pay as little as 5 to 10 percent of the cost of the loss. Thus, implicit in the report is the conclusion that restricting the availability of flood insurance will not aid in reducing the operating deficit of the national flood insurance program and will lead to increased Federal costs for disaster assistance.

Much attention has been paid to the Federal Insurance Administration's operating deficits for V-zones—oceanfront areas susceptible to high winds. It should be noted, however, that no one—including FIA—has any V-zone loss experience data for the first 10 years of the flood insurance program, from 1968–78. FIA either did not keep, or kept in such a way as to make it virtually inaccessible, any V-zone loss experience data for this period. The only data maintained for V-zones was for a period covering approximately 2 years, from January 1978 to April 1980. As you may recall, this was a period with an unusually high frequency of flood damage due to Hurricanes Frederick and David. As a result, any annualized estimates of operating deficits for V-zones based on such a short time period are necessarily spurious and do not reflect the current level experience. Thus, to deny flood insurance to these areas in the absence of any meaningful loss experience data seems highly inappropriate.

Despite the inadequate data base, on October 1, 1981, of this year FIA implemented substantial revisions to their insurance program within the V-zone. Substantial increases in insurance rates went into effect and building elevation requirements have been increased. Thus, unlike other areas included in the flood program, these coastal areas are now paying actuarial rates for flood insurance and are no longer receiving any Federal subsidy in the form of reduced insurance premiums.

It must be stressed that there is nothing within the criteria for designating areas to be affected by the budget reconciliation bill or in S. 1018 that has anything whatsoever to do with an area's susceptibility to flooding. The Interior Department has been given broad discretion to designate undeveloped coastal areas and prohibit the sale of flood insurances, regardless of the suitability of an area for development. The vague and broad language included in the legislation to guide the Interior Department requires them to designate virtually any undeveloped area on the coast, no matter how stable, from Maine to Texas.

A print has been made that the proposed legislation will not stop the development on undeveloped coastal areas, but merely take the Federal Government out of the process. This is, however, a simplistic assumption. Lending institutions currently require flood insurance as a prerequisite for home mortgage loan as any other loans and have been required to do so by the Federal Government for many years.

Senator CHAFEE. Mr. Scott, have you been here all along?

Mr. SCOTT. Yes.

Senator CHAFEE. Did you hear the testimony of Congressman Evans on that point that that is no longer required of Federal lending institutions?

Mr. SCOTT. It is not required on them, but I think that is really academic because lending institutions will be unwilling to make loans in these areas, whether they are able to by law or not. I should point out before 1968 there were some areas of the country where lending institutions, of their own volition, decided not to make loans to areas along the coastline.

Senator CHAFEE. Why would they refuse?

Mr. SCOTT. Perhaps they thought that the area was not one where they should make loans due to a perceived damage to flooding in the area.

Senator CHAFEE. Isn't that the free market system working?

Mr. SCOTT. Yes. My point then——

Senator **Chafee**. I don't understand why taxpayers from Pawtucket, R.I., should subsidize somebody building a second home in a high-risk area.

Mr. **Scott**. There isn't any subsidy after October of this year for flood insurance in the V zones.

Senator **Chafee**. If there isn't, then let private enterprise take it over.

Mr. **Scott**. I would be happy to see private enterprise get into the flood insurance business. Apparently there are negotiations going on between FIA and private insurers to do so. But it appears there won't be any private insurers getting into the flood insurance business until 1988 at the earliest.

Senator **Chafee**. You mean to say insurance companies can't move fast enough? Why won't they get into it?

Mr. **Scott**. I don't know. I haven't spoken to the insurance companies. Perhaps some of these questions will be answers as I get through the testimony.

Senator **Chafee**. Fine, why don't you continue.

Mr. **Scott**. Should flood insurance become unavailable for the coastal areas in question, it is highly unlikely that loans would be made available. Therefore, continued growth in these coastal areas would come to a halt with dramatic impacts on the surrounding communities.

Certainly the negative economic impact on local coastal communities would be a severe one. In South Carolina, our coastal region represents a vital part of our State's economy, and people have inhabited this area for the past 4,000 years. As an example of the positive economic impact of coastal development, let me illustrate our experience. During Hilton Head Island's early development in the 1960's, there was a thirtyfold increase in local tax revenues. In addition to that, prior to Hilton Head's development, the county's per capita income was 51 percent of the national average. Today, permanent residents of the area enjoy an average income of 94 percent of the national average.

In addition to the negative economic impacts on coastal communities as a whole, the proposed legislation will have a profound impact on the owners of property currently planned for future development. Up and down the coast of our own State, millions of dollars have been spent for property and land planning in anticipation of future development. I am sure that this experience is reflected in other States as well, and that many property owners are completely unaware that they would be dramatically affected by this legislation.

A point has been made that these coastal areas have no right to Federal flood insurance and that, perhaps, the Federal Government shouldn't be in the flood insurance business in the first place. In isolation, this argument sounds reasonable. However, when Congress decided to offer subsidized flood insurance back in 1968, it virtually preempted the flood insurance field. In order to receive flood insurance, communities were required to implement local building ordinances that met the Federal Insurance Administration's standards.

Today there are no sources of flood insurance other than the national flood insurance program. And to back out of the program by selecting specific areas simply because they are not currently developed and without regard to their susceptibility to flooding seems to me to represent a classic no growth position entirely inconsistent with responsible Government policy.

Supports of the proposed legislation have claimed that additional Federal subsidies have encouraged development along the coast. A draft environmental impact statement prepared by the Department of Interior reported that the largest source of Federal funds encouraging development came from EPA's sewage treatment program. Between 1975–80, EPA is said to have committed $440 million for barrier island sewer planning and construction. However, a detailed breakdown of EPA data has shown that much of this funding was not used for new development but rather to serve existing communities such as Miami Beach and Nassau County, N.Y. A total of $90 million was committed to Ocean County, N.J. However, the New Jersey Builders' Association estimates that at least 80 percent of these funds were earmarked for inland communities and were not used to support new coastal development. In any event, we feel that the record shows that Federal funds have been committed to developed areas to serve existing communities and that many estimates of the extent of Federal subsidy for undeveloped areas have been greatly exaggerated. I have included as an appendix to my testimony EPA grants data from 1975–80 for your review.

I do not feel—nor have I spoken with any developers or builders who feel—that coastal areas should be given special treatment when compared to inland areas. Yes, the risk of natural disaster does exist along our shorelines. However, there are no areas in the country that are not subject to some form of natural disaster. A study supported by the National Science Foundation, entitled "Building Losses from Natural Hazards: Yesterday, Today and Tomorrow," has shown that building losses due to hurricane-induced flooding represent approximately 8 percent of the total losses from all natural disasters in the United States. The report estimated that a recurrence of the 1906 San Francisco earthquake in 1980 would result in $24 billion in damage, while a recurrence of Hurricane Camille, the worst hurricane on record, would result in $2 billion in damages. Thus, if it is inappropriate for the Federal Government to be involved in areas affected by natural disasters, how then should the Government proceed with other programs in areas affected by tornadoes, earthquakes, volcanoes, drought, landslides, and other natural disasters?

Last, I would like to point out that 75 percent of our country's population is projected to live in a coastal area by 1990. Several years ago, Congress established the coastal zone management program as a means of managing our coast. This proposed legislation would preempt that program despite the fact that it has proven to be quite successful in many areas. To do so in the light of such an overwhelmingly manifest public interest in the coast would be to ignore the success of existing Federal programs and to diminish the value of our coastal resources.

Mr. Chairman, the Department of Interior is in the process of implementing the flood insurance provisions of the reconciliation bill. They are required to designate barrier lands that will be restricted from the availability of flood insurance and, more importantly, recommend a new definition of barrier structures, a point insisted by the Senate conferees. This study is expected to take 1 year to complete. We urge that further expansion of the redlining of our coastal areas be delayed until that study is completed. At that time we will be able to determine what property will be affected and then more accurately assess the impact of the proposed legislation.

Thank you, Mr. Chairman, for allowing me this opportunity to appear before you today. I would be pleased to answer any questions that the subcommittee may have.

[An attachment to Mr. Scott's statement follows:]

Appendix

The attached materials list EPA grants made from 1975 - 1980 for the planning, design and/or construction of wastewater treatment facilities in barrier island environments. It must be noted that, in many cases, the grants listed were made for mainland facilities. They are included here because some portion of those grants represent actual or potential service to barrier islands, and it is not possible to determine those discrete amounts alone.

EPA WASTEWATER TREATMENT.
CONSTRUCTION GRANTS
POTENTIALLY IMPACTING
BARRIER ISLAND ENVIPONMENTS
1975 - 1980

	PROJECT NAME/LOCATION	GRANT AMOUNT	COMMENTS
REGION I			
Maine			
	*Ogunguit *Wells Beach	$9,923,250	*Both beaches indirectly affected by a single project
	Goose Creek	$1,931,025	
	Biddeford Pool	$151,350	
New Hamsphire			
	none		
Rhode Island			
	Napatree	$5,702,140	
	Block Island	$3,011,000	
Massachusetts			
	Plum Island	$289,200	
	Castle Neck	$3,326,625	
	Nahant	$184,621	
	Revere Beach	$1,308,731	
	Nantasket Beach	$11,855,758	
	Humarock	$12,339.735	
	Duxbury	$452,802	
	CuttyHook Island	$10,500	
REGION II			
New York			
	Ocean Beach, Suffolk County	$984,000	outfall
	South West Sewer District #3, Suffolk County	$29,500,000	outfall

	Cedar Creek Recharge Facility	$24,569.747	outfall
	Nassau County Sewage Disposal District #2	$1,417,719	
	Town of Hempstead	$1,156,913	
	Nassau County Sewer District #2 (Bay Park)	$15,293,106	various projects
New Jersey			
	Ocean County Sewerage Authority	$34,543,500	
	Brick Township	$26,245,300	
	Borough of Point Pleasant	$10,938,600	
	Bayshore Regional Sewerage Authority Monmouth County	$7,110,600	
	Borough of Barnegat Light	$1,062,499	
	Brick Township	$8,712,750	
	Township of Neptune	$18,322,154	
	Borough of Harvey	$826,335	
	Shark River Hills	$1,549,837	
	Randolph Township MUA	$167,175	
	Western Monmouth Utilities Authority	$402,769	
	Brick Township	$1,389,400	
	Ocean County Sewerage Authority	$62,859,600	
	Borough of Beachwood	$4,522,900	
	Western Monmough Utilities Authority	$3.037.500	
	Borough of Matawa	$376,145	
	Western Monmouth Utlities Autnority	$3,206,250	
	Union Township Municipal Utilities Authority	$118,085	
	Cape May County MUA	$790,383	
	Borough of Brielle	$3,175,575	
	Ocean County Sewerage Authority	$7,601,250	
	Township of Wall	$4,230,731	

	Lacey Township	$13,174,997	
	Ocean Township MUA	$3,125,060	
	Dover Township	$7,508,848	
	Berkeley Township Sewerage Authority	$1,414,823	
	Galloway Township	$333,000	
	Ocean City-Cape May County MUA	$425,045	outfall
	Ocean City Region Cape May County	$6,737,626	
	Township of Middletown	$90,000	
	Borough of Ocean Gate	$40,991	
	Norhtheast Monmouth County Regional Sewerage Authority	$107,325	
	Stafford Township MUA	$266,355	
	Ocean City Region Cape May County	$12,202,718	
	Galloway Township	$3,900,000	
	Ocean City Region Cape May County	$9,948,556	
	Borough of Ocean Gate	$1,830,000	
	South Toms River Sewerage Authority	$2,600,000	
	Middletown Township	$294,950	
	Barnegat Township	$2,200,000	
REGION III			
Delaware	Fenwick Island	$6,548,400	
	Delaware Seashore State Park	$16,800	
Maryland			
	Ocean City	$10,593,370	
REGION IV			
Georgia			
	Savannah Beach	$921,250	

North Carolina		
	Dare Beach	$100,600
	Carteret	$200,000
	Brunswick City	$112,040
	Swansboro	$35,040
	Onslow	$37,793
	Wilmington	$216,575
	Carolina Beach	$1,859,918
	Kune Beach	$37,725
South Carolina		
	Hilton Head Island	$649,217
	Buford 201 Area	$121,216
	St. Philips Island	
	Fripp Island	
	Hunting Island	
	Berkley, Dorchester, Charleston County	$110,000
	Polly Island	
	Sullivans Island	
	Isle of Palms	
Florida		
	Escambia/Santa Rosa Counties	$25,000
	Fort Walton Beach	$8,100
	Okaloosa Island	$868,800
	Central Pinellas County	$30,000
	North Pinellas County	$35.000
	St. Petersburg	$30,000
	S. Cross Bayou	$2,500,000
	St. Pete Beach	$49,069
	Treasure Island	$2,850
	McKay Creek	$2,000,000
	St. Pete	$3,000,000
	St. Pete Beach	$65,879
	Clearwater	$700,000
	Sarasota County	$5,000
	Charlotte County	$13,000

	Citrus County	$2,000
	Lee County (Sanibel & Captiva Is.)	$23,200
	Indian River/St. Lucie (Hutchinson Island)	$40,300
	Miami Beach	$22,336,688
	Fort Lauderdale	$19,376
	Daytona Beach	$6,929,303
	Brevard County	$397,283
REGION VI		
Texas	Padre Island	$4,673,250
	Galveston	$2,137,500

Senator CHAFEE. Thank you very much, Mr. Scott, for your testimony.

Let me get back to page 7 of your testimony. I am not sure of the point you are making here. You are saying that a reoccurrence of the 1906 San Francisco earthquake would result in $24 billion in damages while reoccurrence of Hurricane Camille would result in $2 billion in damage. Thus, if it is inappropriate for the Federal Government to be involved with areas affected by natural disasters, how then should the Government proceed with other programs in areas affected by tornadoes, and so forth. If you are talking about insurance there, I am not sure of the point you are making. There is no Federal tornado insurance.

Mr. SCOTT. I guess I am not talking insurance. I guess I am talking the byproduct of this bill, which is going to be stop development in areas circled by the Department of Interior. If they are going to be circling areas subject to natural disaster, they need to look further than flooding. I would suggest an analysis of building loss due to natural hazards indicates virtually all areas of the country are subject to some form of natural disaster.

Senator CHAFEE. That is right.

Mr. SCOTT. I would like something that shows how the risk of flooding on coastal areas fits in with natural disaster in other parts of the country.

Senator CHAFEE. Did you hear the letter I read from Mr. Peterson from the Weather Service to Congressman Evans? His distinction is predictability. We are working with averages here. If we refuse to build any roads in San Francisco because San Francisco had an earthquake in 1906, that is something different from doing it in an area that has been affected by the 1938 hurricane, the 1954 hurricane, and various hurricanes that have come since then. Can you see that difference?

Mr. SCOTT. Well, I think predictability from natural disaster is probably common to most natural disasters we experience.

Senator CHAFEE. Not according to Mr. Peterson. He says the ability to predict where an earthquake is going to take place is you hit it once in 250 years, whereas you get a far greater average, 7 to 10 years, on hurricanes.

Mr. SCOTT. Well, I don't know much in the way of detail of the predictability of tornadoes versus flooding in coastal regions. But there are many different types of natural disasters, as I say, that occur in this country. I don't think that anybody was able to predict the volcano eruption that we recently had. They haven't had much success in predicting the San Andreas fault inevitable disaster.

Senator CHAFEE. We agree on that. But you can predict with considerably greater accuracy where these hurricanes are going to come, and indeed they have come.

Mr. SCOTT. That is a good point, because there are some coastal States that have paid into the flood insurance program much more than they have received out in loss payments, and there is nothing in this legislation that allows for that. Our own State of South Carolina, we have paid in, between 1968 and 1977, 497.6 percent into the flood program when compared to what we have received out in loss payments. Florida has paid in 523.2 percent more than they have received. And yet there is nothing in the criteria for defining which areas are going to be designated that has anything to do with historical damage due to flooding on the coast.

Senator **Chafee**. I think if we believe in the free enterprise system, if these areas are so safe, as you say, then let the private insurance companies provide the insurance.

Mr. **Scott**. I agree. I am just suggesting if you want to get out of the flood insurance business, the way to do it is not to circle people's property and, in effect, deny them the ability to build on that property.

Senator **Chafee**. Wait a minute. Let's get this clear. No one is denying anybody the right to build anywhere in this legislation.

Mr. **Scott**. I understand that is your position.

Senator **Chafee**. It is not my position, it is what the act says.

Mr. **Scott**. What I am saying is lending institutions are going to be unwilling to make loans in these areas.

Senator **Chafee**. You are saying that. Are you saying no houses were ever built in coastal islands before the Federal flood insurance came along in 1968?

Mr. **Scott**. No.

Senator **Chafee**. Of course not. Building was going on long before that. If we want to debate the insurance, we can. I think your stronger case, where you devoted a considerable part of your testimony—I want to set aside insurance, unless you want to battle that out. I think you are on weak ground.

Mr. **Scott**. My only point about the insurance is that it is an inevitable way to get out of the flood insurance area, for the Federal Government to circle areas and get out selectively, especially where the areas you are getting have nothing in the criteria for circling the area that have anything to do with those areas' susceptibility to flooding.

Senator **Chafee**. Well, I am not prepared to concede that. If they are returning 450 percent, or whatever, of the premiums paid in for the amount of losses paid out, then obviously it is a good deal for some private company to come in and provide the insurance. But let's move on to page 2.

On page 2 you make some arguments here suggesting that this legislation assumes that the local and State governments are incapable of developing land use plans or taking in the natural processes affecting these areas. We have had all kinds of testimony here today that the coastal zone management isn't supplanted by this act nor replaced by it, that the coastal zone management can continue to exist. Do you dispute that?

Mr. **Scott**. No, I don't dispute that the coastal zone management program will continue to exist should this legislation be passed. I guess I am just suggesting that the local communities know their area better than we do up here in Washington, and that some areas are subject to erosion, some areas aren't suitable for development, but some are accreting, some areas are suitable for development. Again, there is nothing in the criteria for designating areas that has anything to do with which areas are stable or not stable. The criteria simply say, if you are not developed now, you are going to be designated.

Senator **Chafee**. Well, yes, but you have to be a barrier island.

Mr. SCOTT. No, an undeveloped coastal barrier, which includes coastal areas.

Senator CHAFEE. Or a beach. That is what it is.

Do you dispute the testimony we have had about the importance of these areas?

Mr. SCOTT. I clearly think they are important. The economic impact of these areas, as I have shown in my testimony, is quite significant.

Senator CHAFEE. But I mean the importance of them, as has been outlined by witness after witness here, ecologically for sea life.

Mr. SCOTT. Absolutely. And I think the public ought to have a chance to enjoy those areas. I am suggesting if they are not able to be developed, we are going to end up restricting public access. I would like to see people able to enjoy the coastal resource.

Senator CHAFEE. If the figures are right on the lot on Hilton Head, it is hardly the public that is getting in there to enjoy them. What are the statistics? Well, you know them better than I do. Are these figures accurate, a quarter-acre lot sells for $250,000?

Mr. SCOTT. I believe that is about right for Hilton Head. But certainly Hilton Head is not a typical coastal developed area. There are interesting examples of it. For instance, in Cumberland Island, S.C., which is an island that has been protected, you have to get on a waiting list to get to Cumberland Island. The per visitation subsidy that the Federal Government has now for every visitor that goes to Cumberland is in excess of $500 per night. So you can go to a protected barrier island and you can visit it, if you are lucky enough to get to the top of the waiting list, and the Federal Government is willing to spend $500 for it. I don't know any accommodation on Hilton Head Island that is $500 a night.

Senator CHAFEE. Well, it costs——

Mr. SCOTT. It costs $500 a night.

Senator CHAFEE. And the Federal Government is charging that?

Mr. SCOTT. It is a federally protected island.

Senator CHAFEE. Well, I am not familiar with that. What is the name of the place?

Mr. SCOTT. Cumberland Island, S.C. It is a beautiful place. I wish I could get there. I am not on the waiting list.

Senator CHAFEE. Well, it seems to me the important point we would like to get across here is this legislation doesn't prevent anybody from doing anything. You can go ahead and develop it at your will in Hilton Head and wherever you wish. This doesn't prevent it. And if it is such a valuable area, South Carolina believes in it as strongly as they do, or appear to, they are perfectly free to build bridges over there.

Mr. SCOTT. I guess we just disagree on what the impact of the legislation will be. You are suggesting lending institutions won't be required by law to require flood insurance, and I guess my position is that is a moot point because they will be unwilling to make loans in those areas because in the pre-1968 experience that appeared to be the case for some locations.

Senator CHAFEE. Well, I think that you show lack of confidence in the free enterprise system, Mr. Scott, to think that. If it is as safe as you point out, somebody is going to move in there. We all acknowledge there was plenty of building prior to 1968 when this insurance came along. You choose 1988. Why did you choose 1988?

Mr. SCOTT. I think FIA has been discussing the private insurance entry into the flood insurance business, and somehow they have 1988 as the earliest term date they would consider getting in, and I am not privy to all that so I am not sure what.

Senator CHAFEE. Mr. Slesinger, do you have a comment?

Mr. SLESINGER. I would like to add something here. When flood insurance became a Federal program in 1968, it subsidized the premiums substantially, and that, of course, would drive the private insurers out of the market because they can't obviously compete with a program that is so heavily subsidized. And I think not being in the program for that many years there is going to be a hesitation on the private insurers to get back, and possibly they would be more inclined to insure a larger scale development rather than a single family home which would have more overhead per unit to figure out what the insurance would be. So I think 1988 could be an optimistic estimate before private insurers would feel they can go back in the market and won't be pushed out by a Federal subsidy program again, and then figure out what the risk would be.

Senator CHAFEE. It seems to me you show an alarming lack of confidence in the alacrity of insurance companies to move in where there is an opportunity. I just have greater confidence in the insurance industry's ability to respond to a chance to make some money than you do.

Mr. SCOTT. Have you gotten any indications from them that they will enter the program?

Senator CHAFEE. No, I haven't. We haven't asked them. We just know where there is an insurance vacuum, I expect the insurance company will flow in. I have no doubt. Maybe the prices won't be what the Federal insurance program is, it probably won't, it will be higher, but they will be there for some price, I am confident.

Thank you very much. We appreciate both of you gentlemen taking the time and trouble to appear before us and for submitting the statement.

That completes the testimony today, and we want to again thank the witnesses for being here.

We are now adjourned.

[Whereupon, at 4:05 p.m., the subcommittee recessed, to reconvene subject to call of the Chair.]

[Statements supplied for the record, follow:]

STATEMENT OF THE HONORABLE THOMAS B. EVANS, JR.
CONCERNING S. 1018, THE COASTAL BARRIER RESOURCES ACT
SENATE SUBCOMMITTEE ON ENVIRONMENTAL POLLUTION, OCTOBER 21, 1981

Mr. Chairman, it is a real pleasure to appear before the Subcommittee on Environmental Pollution to express my strong support for the Coastal Barrier Resources Act. The distinguished Gentleman from Rhode Island is, of course, the sponsor of S. 1018, the Chafee-Evans bill, and I am honored to join him as the sponsor of the companion measure in the House, H.R. 3252.

The House bill now has over 40 cosponsors, evenly divided among Republicans and Democrats. I am especially pleased to report that one-fourth of the cosponsors represent districts from both Atlantic and gulf coasts that have barrier islands potentially affected by this legislation. The Coastal Barrier Resources Act also enjoys the strong support of a variety of civic, environmental, professional, and scientific organizations, including the National Taxpayers Union.

Barrier islands and related structures such as spits and bay-mouth barriers front most of our Atlantic and Gulf of Mexico coastline. In their natural state these geologic banana peels, as they are called, buffer the mainland from the full brunt of hurricanes and other storms and they shelter the wetlands and estuaries which make possible our rich commercial fisheries. Unfortunately, with considerable help from the Federal Government, our barrier islands are rapidly becoming urbanized. This development is not only dangerous to the lives

AND PROPERTY OF THOSE WHO DEVELOP BARRIER ISLANDS, BUT IN THE RUSH TO DEVELOP, WE OFTEN DESTROY THOSE RESOURCES AND VALUES WHICH DREW US TO THE COAST IN THE FIRST PLACE.

MR. CHAIRMAN, I BELIEVE THE COASTAL BARRIER RESOURCES ACT HAS ATTRACTED WIDESPREAD SUPPORT FOR THE SIMPLE REASON THAT IT MAKES SENSE. IT MAKES SENSE TO STOP THROWING OUR TAX DOLLARS DOWN A BOTTOMLESS RATHOLE. IT MAKES SENSE TO PROTECT NATURAL RESOURCES VITAL TO THE ECONOMIES OF OUR COASTAL STATES, AND IT MAKES SENSE TO RESTRICT FEDERAL PROGRAMS WHICH GIVE PEOPLE A FALSE SENSE OF SECURITY ABOUT THE SAFETY OF LIVING IN A VERY HAZARDOUS ENVIRONMENT.

THE PRESIDENT, AND PROBABLY EVERY MEMBER OF CONGRESS, HAS OFTEN SPOKEN OF THE NEED TO ELIMINATE WASTEFUL AND UNNECESSARY GOVERNMENT SPENDING. IT IS WASTEFUL AND UNNECESSARY, IN MY OPINION, TO SPEND BETTER THAN HALF A BILLION DOLLARS OVER THREE YEARS TO AID BARRIER ISLAND DEVELOPMENT WHEN WE KNOW THE INEVITABILITY OF THOSE AREAS BEING DEVASTATED BY HURRICANES. THE PROBABILITY IN ANY ONE YEAR OF A 50-MILE SEGMENT OF OUR COAST FROM MAINE TO TEXAS SUSTAINING A DIRECT HIT BY A HURRICANE IS 1 IN 10. IN THIS CENTURY WE HAVE ALREADY HAD 27 HURRICANES IN WHICH PROPERTY LOSSES EXCEEDED 50 MILLION DOLLARS AND 31 HURRICANES IN WHICH 25 OR MORE PEOPLE LOST THEIR LIVES.

EXPENDITURES IN THESE STORM- AND EROSION-PRONE AREAS AMOUNT TO NOTHING MORE THAN HIGH STAKES GAMBLING USING THE TAXPAYERS DOLLARS. NEEDLESS TO SAY, THE LAW OF AVERAGES EVENTUALLY CATCHES UP WITH THE GAMBLER, AND IT IS THE TAXPAYER WHO LOSES.

THE COASTAL BARRIER RESOURCES ACT WOULD BREAK THE CYCLE

OF FEDERAL AID WHICH STIMULATES DEVELOPMENT ON BARRIER ISLANDS ONLY TO BE FOLLOWED BY REPEATED REBUILDING ASSISTANCE AFTER DEVASTATING STORMS. IT DOES THIS BY RESTRICTING NON-ESSENTIAL FEDERAL EXPENDITURES AND FINANCIAL ASSISTANCE ON THOSE ATLANTIC AND GULF COAST ISLANDS THAT ARE PRESENTLY NOT DEVELOPED. ONE CONSULTANT HAS ESTIMATED THAT WITHOUT THIS LEGISLATION THE COST TO U.S. TAXPAYERS OF DEVELOPING THE AREAS COVERED BY S. 1018/H.R. 3252 WOULD RANGE FROM 5.56 TO 10.71 BILLION DOLLARS OVER THE NEXT 20 YEARS. THAT ESTIMATE CAN BE OFF BY A FEW HUNDRED MILLION DOLLARS AND STILL REPRESENT A TREMENDOUS SAVINGS TO THE U.S. TAXPAYER AT A TIME WHEN WE ARE ALMOST LITERALLY COUNTING OUR PENNIES.

THE COASTAL BARRIER RESOURCES ACT DOES NOT AUTHORIZE THE ACQUISITION OF ANY LANDS BY THE FEDERAL GOVERNMENT, NOR DOES IT IMPOSE ANY LAND USE RESTRICTIONS ON STATE AND LOCAL GOVERNMENTS OR PRIVATE PROPERTY OWNERS. WHAT THE BILL DOES DO IS LET PROPERTY OWNERS DEVELOP THEIR LAND AS THEY SEE FIT -- SO LONG AS THEY FULLY BEAR THE COSTS AND THE RISKS. THE BILL EXEMPTS A NUMBER OF ESSENTIAL ACTIVITIES FROM THE PROHIBITIONS AGAINST FEDERAL SPENDING, INCLUDING ENERGY DEVELOPMENT, THE MAINTENANCE OF CHANNEL IMPROVEMENTS AND ROADS, MILITARY ACTIVITIES, AND THE INSTALLATION AND MAINTENANCE OF NAVIGATION AIDS AND DEVICES.

BEFORE CLOSING I WANT TO TOUCH ON THE MATTER OF THE NATIONAL FLOOD INSURANCE PROGRAM. ALTHOUGH THE CHAFEE-EVANS BILL WOULD PROHIBIT FLOOD INSURANCE ON UNDEVELOPED COASTAL BARRIERS, JUST AS IT WOULD PROHIBIT OTHER TYPES OF FEDERAL

ASSISTANCE, I ASK THAT THE SUBCOMMITTEE TAKE NOTE OF THE FACT THAT THE CONGRESS HAS ALREADY EXPRESSED ITS WILL ON THIS MATTER. THE OMNIBUS BUDGET RECONCILIATION ACT OF 1931, SIGNED BY THE PRESIDENT THIS AUGUST, INCLUDES A PROVISION TO PROHIBIT FEDERAL FLOOD INSURANCE FOR NEW CONSTRUCTION ON UNDEVELOPED COASTAL BARRIERS AS OF OCTOBER 1, 1983. THE ORIGINAL PROVISION, WHICH WAS THE POSITION OF THE HOUSE, CALLED FOR AN IMMEDIATE CUT-OFF. HOWEVER, THE SENATE INSISTED ON A COMPROMISE DATE, AND IT IS A FAIR ONE WHICH ALLOWS FOR A TRANSITION PERIOD FOR THOSE WHO MAY HOLD PROPERTY BUT HAVE NOT YET ERECTED STRUCTURES. SINCE THE CONGRESS ONLY RECENTLY ACTED ON THIS MATTER, I WOULD URGE THE SUBCOMMITTEE TO CONSIDER THIS ISSUE AS HAVING BEEN RESOLVED.

IN CLOSING, IT IS NOT EVERY DAY THAT ONE HAS THE OPPORTUNITY TO SUPPORT LEGISLATION WHICH COMBINES THE TWIN OBJECTIVES OF FISCAL RESTRAINT AND ENVIRONMENTAL PROTECTION. AT A TIME WHEN WE ARE FACED WITH BUDGET REDUCTIONS IN FUNDAMENTAL PROGRAMS IN TRANSPORTATION, HEALTH, EDUCATION, AND OTHERS, I DO NOT THINK WE SHOULD CONTINUE TO SPEND TAX DOLLARS TO SPUR DEVELOPMENT ON STORM-PRONE BARRIER ISLANDS. WE MUST BE CREATIVE IN FINDING WAYS TO REDUCE FEDERAL SPENDING, AND THIS BILL DOES EXACTLY THAT.

WITH YOUR PERMISSION, MR. CHAIRMAN, I WILL SUBMIT FOR THE RECORD SEVERAL ITEMS WHICH AMPLIFY ON MY COMMENTS THIS MORNING.

[From the Asbury Park Press, Sept. 20, 1981]

FLOOD INSURANCE—WILL BUDGET CUTS AFFECT COVERAGE?

(By Sherry Conohan, Press Staff Writer)

It was one issue on which both budget cutters and environmentalists could agree.

And so Congressional conferees tucked into the final version of the federal budget for the fiscal year beginning Oct. 1 a provision which prohibits the sale of federal flood insurance for any new construction or substantial improvements of existing structures on "undeveloped coastal barriers" after Oct. 1, 1983.

The job of defining what "undeveloped coastal barriers" are was given to the U.S. Interior Department, which has a full year—until October 1, 1982—to do just that. But it appears, from the department's field work to date, that little—if any—of New Jersey will fall into that category.

Only small sections of undeveloped land at Ludlow's Bay, Stone Harbor and on the West Cape May-Lower Township border—all in Cape May County—seem to stand any chance at all of being included in the banned area. And, at present, it's unlikely that they will be targeted.

But Congress' swift action this year in cutting off federal flood insurance for undeveloped barrier beach areas raises the question of whether developed areas may be next to fall under the ax in the even bigger budget crunch that looms ahead.

Already, pending legislation in both houses of Congress would cut off all other forms of federal aid, beyond flood insurance, for undeveloped coastal barriers—be they islands, spits or tombolos.

The bills, introduced in the House by Rep. Thomas B. Evans Jr., R-Del., and in the Senate by Sen. John H. Chafee, R-R.I., with bipartisan support, would terminate federal assistance to these areas for construction of roads, bridges or sewer systems, and for schools, jetties, erosion control projects, low interest loans for housing, loan guarantees for farmers, economic development grants and the like. The few exceptions include aid for exploration or development of energy resources, maintenance of existing public roads and jetties and for military activities.

The aid cutoff would apply to undeveloped coastal barriers along the Atlantic and Gulf coasts from Maine to Texas, estimated to total roughly 600 miles of beachfront, much of it in the Carolinas and Florida.

Evans said he has no intention of extending his bill, or introducing any other, to terminate either flood insurance or any other federal aid program in developed coastal barrier areas, but that he couldn't rule out such an effort by one of his colleagues.

"Certainly, it has been discussed," he acknowledged. "Others have come to us and suggested it, but we have no plans to do that."

If extended to developed areas, the withdrawal of federal flood insurance—which is not available privately through insurance companies—could have some effect on the resale value of properties in the affected areas because of skeptical buyers.

But it apparently would not affect the availability of insurance coverage for other protection, such as fire or theft, according to industry representatives. Nor would it result in a drying up of mortgage money for structures lying in flood hazard areas—*if* federal regulations are changed, as they will be under the budget bill for the undeveloped areas affected by it.

But that's a big *if*.

Under present law, a federally-insured financial institution may not grant a mortgage to any building in a community that is a participant in the federal flood insurance program unless the owner also secures federal flood insurance for the structure.

The budget bill, at Evans' suggestion specifically provides that federally-insured financial institutions may write mortgages in undeveloped barrier beach where federal flood insurance will no longer be offered for new construction. Evans said such decisions, on whether to issue a mortgage on property which is not insured against flood damage, are properly a matter between the financial institution and the individual rather than the federal government.

Several lending institutions in Monmouth and Ocean counties, when queried about this, said they would continue to make mortgages on buildings in flood hazard areas; even if federal flood insurance were not available, if federal regulations were changed so that they could legally do so.

Critics of the program contend it did just the opposite of what was intended—encouraged development in flood prone areas by subsidizing potential losses with insurance that was not available on the private market. As designed, each community that chose to participate in the federal flood insurance program was supposed to draw up—and put into effect—a flood plains management plan aimed at controlling development and reducing flood damage in flood areas.

Over the years, however, enforcement requirements were relaxed while the government pushed for more communities to participate. Costs became unexpectedly high instead of progressingly gradually toward a self-supporting system, envisioned to be achieved over a period of 40 years, with actuarially correct rates assessed the policy holders.

In April, Evans and Chafee introduced their Coastal Barrier Resources Act which, in its original form, proposed cutting off federal flood insurance and all other forms of federal aid for undeveloped coastal barriers in one full swoop. The legislation had not passed in either House when Evans proposed an amendment to the House budget bill terminating federal flood insurance only to these areas.

Rep. Fernand J. St Germain, D-R.I., chairman of the House Committee on Banking, Finance and Urban Affairs, quickly embraced the proposal and the House approved it. The Senate had no such provision in the budget bill it passed but, in conference, it was incorporated in the conciliation budget that was adopted by Congress.

Evans said that without a fundamental change in federal policy, as proposed in his legislation, the government would spend anywhere from $4 billion to $11 billion over the next 20 years to aid development on only about half of those coastal barriers which are now undeveloped. He estimated his original bill, including the termination of federal flood insurance for new construction or substantial improvements to existing structures in undeveloped barrier areas, would save the taxpayers of the country anywhere from $200 million to $550 million a year.

"Let me stress that this bill . . . does not pre-empt local government zoning and permitting authorities," Evans said. "It does not prevent a private land owner from spending his own money for developing his property as he desires, but this development should not take place at the expense of the American taxpayer."

He said owners of homes on undeveloped barriers now covered by federal flood insurance would not be affected by any change in availability.

"If you have a house, you are grandfathered in and you could sell the house and the new owner could get flood insurance on it," he explained.

"But there is one caveat," he added. "If the new owner wanted to put on a big addition, he could not get flood insurance for the new part of the house."

Derrickson W. Bennett, executive director of the American Littoral Society headquartered on Sandy Hook, called the termination of flood insurance for new construction on undeveloped coastal barriers "psychologically the first step" toward slowing growth in developed areas such as those along the New Jersey coast.

"It's a signal to everybody who is thinking about building in the future that those areas are going to be flooded," he said.

Bennett said he favors cutting off federal flood insurance for new constuction in developed coastal barrier areas as well so that the taxpayers don't have to pay for the "folly" of those who insist on building there by subsidizing their flood insurance.

"There's a difference between people who built there 30, 40, or 50 years ago and those who do it today," he said. They have the knowledge today, they know those areas will flood in storms . . . People today are building quarter-of-a-million-dollar houses with an ocean view. That's a very good example of misplaced funds. I can't think of anybody less eligible for federal aid.

"The question is, how do you change it? The problem is, can you do it politically? I think that with the (proposed state) dunes bill the lesson probably is that you can't do it that drastically politically. You have to do in steps."

The controversial Dunes and Shorefront Protection Act pushed by the Bryne administration would have set tough standards for new construction and prohibited the reconstruction of buildings built in dune areas if they were more than 50 percent destroyed by storms. But it ran into strong opposition from Shore residents and legislators and—after modifications failed to make it any more platable—finally was shelved by its sponsor.

The dunes bill, as originally written, would have provided no compensation to property owners who lost the value of expensive waterfront lots because they either could not be developed or existing structures on them could not be rebuilt.

The budget amendment cutting off federal flood insurance for new construction on coastal barriers and the remaining proposed Evans-Chafee legislation similarly make no provision for reimbursing any property owner whose value might be adversely affected by them. And that, according to Rep. James J. Howard, D-N.J., is one of their most bothersome points.

He also does not like to prohibit flatly aid for development in all undeveloped areas.

"I would agree with almost everything they say," Howard said about supporters of the legislation as it affects undeveloped coastal barriers. "But as of now, I would not be supporting it.

"What concerns me is the blanketing out of every undeveloped area in the country," he explained. "I would not want to rule out development in some area that may be suited to be developed. And I worry about people who have bought property that they may not be able to develop."

But politically, in Congress at least, the legislation may gain considerable support, Howard continued. He said it would have appeal to the vast majority of members who do not represent a coastal area as an easy way to reduce federal spending when they are faced with the task of further cutting the budget.

The provision cutting off flood insurance for new construction in undeveloped coastal barrier areas was passed as part of the budget but, Howard said, if brought up on its own, opponents almost certainly would not have fared any better.

"I would hate to have that come up for a vote in Congress," he said, "because I think we would lose it."

"We would have to be very careful," John Calabria, senior vice president of Shadow Lawn Savings & Loan Association, said. "We would look at each application and say maybe one is a greater risk than another."

But, he added, Shadow Lawn would "absolutely not" cease granting mortgages because of the unavailability of flood insurance—if the federal prohibition were removed. He pointed out that Shadow Lawn made mortgages on properties in flood hazard areas before federal flood insurance, established in 1968, became available and said he could see no reason why it wouldn't do so again.

Gabriel Quinones, vice president and loan officer of Ocean Federal Savings & Loan Association, similarly said that institution probably would continue issuing mortgages without federal flood insurance; just as it did before the program came into existence, if free to do so.

"As before, we would judge applications on a case by case basis," he said.

If, on the other hand, the prohibition on bank mortgages for properties without federal flood insurance should remain in effect—and the ban on issuing the insurance to new structures should be extended to developed areas—growth essentially would be brought to a standstill.

That might be the wish of some environmentalists, but it is not yet the sense of Congress. Although both budget containment and environmental concerns figured in adoption of the provision cutting off federal flood insurance for new construction in undeveloped coastal barrier areas, the former outweighed the latter.

Some 17,000 communities across the nation have availed themselves of the federal flood insurance program since it was established 13 years ago, including 52 in Monmouth County and 28 in Ocean County. It encompasses 2 million policy holders nationwide with a combined total of more than $100 billion in insurance in force.

And throughout its existence, the program has been a money loser. Since its inception, the federal government has paid out more than $1.1 billion in claims while taking in only $675 million in premiums.

The bulk of the policy holders live in inland communities which face the threat of flood from rivers and lakes. But the most predictable losses have been along the barrier islands, which can be buffetted by hurricanes and where structures are subject to the capriciousness of shifting sands and often, during storms, to direct wave action.

Although identifying precisely how many of its policy holders are located on coastal barriers is difficult, since only part of a community may lie on one, the Federal Emergency Management Agency, which administers the program, has concluded that there are at least 62,000 policy holders with a total of $4 billion in coverage in coastal "V" high hazard zones—those subject to wave action.

It further has identified 90 communities that are on barrier islands, in which there are 105,000 policies in effect amounting to $6.5 billion of insurance. It estimates that those figures represent about half of the total flood insurance coverage on barrier islands.

In the 90 identified barrier island communities alone, 6,400 flood insurance claims amounting to $43 million have been paid to policy holders from 1978 to the present time.

[From the Winston-Salem Journal, Sept. 17, 1981]

HEADING OFF THE RUSH

Some of the most desirable parcels of North Carolina real estate happen to be lots along the state's numerous coastal inlets. Unfortunately, those lots also happen to be among the most unstable parcels of land in the state. Inlets change their shapes with every ebb and flow of the tides, and the adjoining land is subject to erosion and flooding. Inletside properties—particularly those on the state's barrier islands—are also vulnerable to the fury of tropical storms and hurricanes. But the great risks involved in building along the inlets haven't stopped the rapid commercial development of those delicate areas. In fact, an official of the state Office of Coastal Management recently characterized the situation as a "land rush." Fortunately, the state Coastal Resources Commission took measures last week to at least temporarily head off the rush.

The commission met at Beaufort Community College on Friday, and its 15 members heard reports that left them clearly—and rightfully—disturbed. The commissioners, who'd been considering tighter regulations on inlet development, learned that some developers had begun speeding up their projects in an effort to avoid being subjected to any new standards. Even though the CRC had previously scheduled a series of public hearings for this week, regarding the imposition of stricter regulations, the commissioners unanimously decided to enforce emergency restrictions for a 120-day period. As CRC Chairman J. Parker Chesson Jr. of Elizabeth City explained: "We are concerned about protecting lives and property. If those lands are developed hastily before the commission can receive public comment and carefully review the issue, the public interest will suffer. This emergency rule will give us time to decide this very important public policy question."

The emergency regulations, which control development on 15 inlets, are grounded in common sense. The standards were developed following exhaustive studies of the inlets' movements since 1938, and the standards reflect those shifts of water and land. The emergency regulations include: a prohibition on almost all development in an inlet setback zone, the size of which will be determined on the basis of the inlet's movement; a requirement that development behind the first line of stable vegetation be at a distance equal to that of the setback in the oceanfront; and a limit of one permanent residential or commercial structure per 15,000 square feet of land area. The regulations do not apply to inlets regarded as stable or to inlets on federally owned land.

As Kenneth Stewart, director of the state Office of Coastal Management, freely admitted, the new regulations represent a governmental intrusion into what had previously been considered a private-sector matter. However, the intrusion is more than justified because inlet management, as Chesson noted, is a "very important public policy question." Indeed, it's a question that involves the public purse as well as the private, given that storm damage to private structures often entails government flood insurance payments, federal disaster relief and the repair of public utilities. In fact, the new regulations may help the private sector. The restrictions should serve, Stewart noted, "to protect the consuming public from purchasing land or homes which, in all likelihood, will become unusable or even unsafe in the face of regular erosion or the forces of a hurricane or major storm."

North Carolina's emergency regulations are certainly justified and welcome. And they come on the heels of a federal initiative designed to help halt the land rush along the nation's coasts. Owing to the good sense of Republican Rep. Tom Evans of Delaware and Republican Sen. John Chafee of Rhode Island, the recently passed budget-cut package contained a provision which will partially eliminate federally subsidized flood insurance policies for structures built on the barrier island chains off the Gulf and Atlantic coasts.

The federal government never should have entered the business of providing such insurance in the first place. The program has served to encourage development where development wasn't needed. Like the inlets, the barrier islands are extremely unstable and unsuited for major development. But the flood insurance program has acted as a magnet for development—and at a considerable cost to the taxpayers. Since the program was established during the 1960s, it's lost about $14 million a year, or more than $230 per insured homeowner. During the same period, the government has assumed the responsibility for insuring $13 billion worth of high-risk property. In the event of a major storm, the treasury could expect to have to make a multibillion-dollar payoff. As Chafee noted in the spring, that's simply not justified. "Those who own or live in the barrier system," he said, "have the option to build and develop as they wish, but at their own financial risk, not at the financial risk of the U.S. taxpayers."

But the continued unrestricted development of fragile coastal areas entails a risk that can't be measured in dollars and cents. That's the risk that lives will be needlessly lost during a major storm or hurricane. Many maritime weather experts agree that a truly devastating storm—such as the one that ripped through Florida in 1935 and took more than 400 lives—is long overdue. Given the continuing overdevelopment of the coastal areas, the tragedy wrought by such a storm today would be immensely greater.

A hint—and just a hint—of what could happen was provided last month when a relatively minor tropical storm called Dennis struck the coasts of North and South Carolina. The roads leading from seaside resorts were jammed as tens of thousands of people sought an inland haven. Had Dennis been fiercer, escape might have been impossible, especially from remote but seasonally overpopulated areas such as the Outer Banks. Nonetheless, Dennis still took two lives in the Carolinas. It was simply a matter of luck that the storm didn't kill more.

Actions such as the CRC's emergency inlet development regulations and the Chafee-Evans assault on the federal flood insurance program indicate a growing awareness that such good luck can't be expected to last forever. Both represent steps in the direction of forming a new coastal management strategy that would help offset the inherent risks of continued overdevelpment of the coastal areas. But those first steps, welcome as they are, need to be followed by an even closer examination of the problems of seaside development. Unless the land rush apparent in North Carolina and other coastal states is headed off—and headed off permanently—some of the most desirable parcels of real estate in the nation may ultimately prove to be of little use except as burial plots.

[From the Charleston, S.C., News and Courier, July 14, 1981]

THE BARRIER ISLAND BILLS

Despite what critics say legislation before Congress to bar federal subsidies for development of barrier islands along the Atlantic and Gulf coasts still makes sense. It could result in savings in lives, resources and tax money.

Federal assistance for roads and bridges, water lines and sewerage, flood insurance and shoreline stabilization has encouraged the buildup on barrier islands. As long-time residents of coastal Carolina can attest, barrier island development can be hazardous. The islands are vulnerable to hurricanes; their beaches subject to cyclical erosion.

Cutting off federal subsidies might discourage commercial and residential development and consequently hold down population concentrations, thus affording opportunity to save lives and minimize property damage in event of storms.

Cutting off subsidies would help preserve the islands themselves as unspoiled areas essential to fish and wildlife and to recreation as well.

Barring federal subsidies could relieve a drain on tax money by people who insist on building on shifting sand, then ask for more government money to rebuild every time sea and wind act up.

The bills, introducted by Sen. Chafee of Rhode Island and Rep. Evans of Maryland, do not prohibit building on barrier isles. They do not restrict zoning by local governments. The bills simply say that any development will be undertaken at the risk and expense of the individual or private company, not at the risk of taxpayers collectively. The economy being what it is today, and taxes being where they are, nothing makes more sense than that.

Sen. E. F. Hollings, who nine years ago sponsored the Coastal Zone Management Act, sees things differently. He says the coastal zone act, designed to halt costly waste of coastal resources, affords the protection needed. The coastal zone act was a big step forward. It does not, however, take federal subsidies out of the picture, and put the financial burden on the developers of barrier islands, where it belongs.

[From the Georgia Gazette, May 13, 1981]

TRULY CONSERVATIVE

U.S. Sen. John Chafee of Rhode Island has introduced a piece of legislation which, if it becomes law, will help correct some of the most flagrant deficiencies in our use of beachfront land along the Atlantic and Gulf coasts.

The Chafee bill would eliminate governmental subsidy of real estate development on the country's barrier islands. Once it passes, a developer who constructed a road where it can be washed out easily in a storm would bear the full expense of repairing the road when the storm came. A homeowner who put up his house among the sand dunes on an undeveloped island would have to face the threat of storm damage without the security offered by federal flood insurance.

The result of this change in policy would be that people would no longer build in fragile, beachfront areas. Few financial institutions would offer a mortgage for a building that could not be insured, and few insurance companies will take the risk of protecting such a vulnerable piece of property.

During the past three decades, the public has subsidized waterfront construction far more than it realizes. Every time a storm washes away a beachfront house, the public helps pay to rebuild it. Every time a changing shoreline eats into a waterfront highway, the public pays to repair it. And each time it happens, we call it a natural disaster, an act of God. In fact, it's no more a natural disaster or an act of God than if a child went to play on an interstate highway and got hit by a truck. Building permanent structures on flood-prone, unstable land is much like playing in a busy street.

The Chafee bill came up last year in a different form. That proposal would have required that the federal government purchase the remaining uninhabited coastal islands to protect them from the pressures of private land developers. Of course, that idea ran aground on hard times and political opposition from coastal communities which would have lost part of their tax bases.

Another part of the dilemma which no one discussed was that placing the land under federal control did not necessarily mean it would be protected. In 1961 when the Kennedy administration first came to power (as today under the Republican administration), federal officials faced rising demands for heavier utilization of public land. Public ownership does not equal wilderness. To have placed so many of our islands under one ownership could have placed their future in a precarious position. At least with many of them under private ownership it seems unlikely that a change in national policy could lead to simultaneous changes in use of the islands all at one time. Diverse ownership seems to offer greater protection than often-fickle federal policy.

The present version of the bill provides a rare combination of environmental protection, lower federal spending and less federal interference in local affairs. It could appeal to both New Englanders and Westerners, to Republicans and Democrats, to developers and conservationists. It does not block development of private land, but it makes it clear that any developer will have to bear the full cost alone.

We hope Sens. Nunn and Mattingly waste no time in joining Chafee as co-sponsors, and we hope that Rep. Ginn lends his name to it when it crosses to the House.

[From the Paris, Texas News, May 10, 1981]

THE RIGHT IDEA ON ISLAND DEVELOPMENT

A couple of Republican lawmakers up in Washington want to get the federal government out of the business of subsidizing the development of America's environmentally sensitive barrier islands. While their plan will raise the hackles of would-be developers, it seems to us to have a good deal to recommend it.

Sen. John Chafee, R-R.I., and Rep. Thomas B. Evans Jr., R-Del., said during a news conference last week that their bill could save the federal government a ton of money which is currently going to underwrite flood insurance, subsidize sewer and water lines, and construct roads for island developments which can all too easily be swept away by a hurricane or other freak of nature. Evans noted pointedly that claims and expenses recorded in hazardous coastal zones in 1978 and 1979 exceeded premiums paid in by a ratio of over 3 to 1.

The two took some pains to stress that their legislation would in no way keep persons or companies from building structure on the islands, nor would they prevent local governments from zoning islands for development. "We're not prohibiting anybody from doing anything," Chafee said. "If they want to build a hotel that's fine. We're just saying we're not going to subsidize it."

Chafee and Evans' approach makes eminently good sense. The present situation, in which Washington at least tacitly encourages development of sensitive barrier islands, seems to us wasteful and reckless. Indeed, if it were up to us, we'd like to see the federal government given some powers—tightly limited powers—to slow or even halt the exploitation of islands whose very existence could be threatened by the kind of rape-and-ruin development that we have so often seen. But Chafee and Evans are at least heading in the right general direction. We hope Congress will follow their lead.

[From the New Orleans Times-Picayune, Apr. 30, 1981]

SUBSIDIZING SAND CASTLES

There is no reason why the nation's taxpayers should subsidize the private development of barrier islands in the Gulf of Mexico and off the Atlantic coast. There are, in fact, good reasons why they should not.

The little islands serve as protective barriers, diluting the impact of hurricane tides on coastal communities. The shifting, eroding sands of the fragile strips are not really suitable for development, and the obvious vulnerability of the islands to hurricanes makes them unfit for prolonged human habitation. The use of taxpayers' money to subsidize their development is an unwise and inappropriate expenditure.

Two Republican legislators, Sen. John Chafee of Rhode Island and Rep. Thomas B. Evans Jr. of Delaware, make these points in support of their bills to eliminate federal subsidies for such high-risk ventures. The proposed legislation could save millions of dollars in federal flood insurance subsidies alone by stopping new flood insurance policies from being issued for undeveloped islands. The bills also would eliminate federal subsidies for water and sewer systems and highways.

The two congressmen note that their proposed legislation would not prohibit local governments from zoning barrier islands for development nor stop private developers from proceeding on their own. "What it does say is that if you move ahead, you do so at your own financial risk and not at the risk of the American taxpayer," said Rep. Evans.

Without federal subsidies to pave the way and absorb much of the risk, the folly of investing millions of dollars in the development of the vulnerable barrier islands should become more apparent to those eager to reap a financial windfall from their development.

The two congressmen hope to and should receive the backing of the Reagan administration for their bills. A government pledged to conserving the taxpayers' money should have nothing to do with building castles in the sand.

SAVING THE AMERICAN BEACH: A POSITION PAPER BY CONCERNED COASTAL GEOLOGISTS

Results of the Skidaway Institute of Oceanography Conference on America's Eroding Shoreline: The need for geologic input into shoreline management, decisions and strategy

25-27 March, 1981

Savannah, Georgia

Conveners:

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SUMMARY

New approaches to the management of the American shoreline are urgently needed to preserve our recreational beaches for future generations. Approximately half of the 10,000 miles of the "lower 48" American shoreline facing the open ocean is under development pressure. Well over 2,000 miles are considered by the U. S. Army Corps of Engineers to be in a state of critical erosion. Erosion is occurring along almost all of the U.S. coast and when shoreline retreat collides with shoreline development, a state of "critical erosion" is achieved. Shoreline retreat is due to many causes but a major one is rising sea level and indications are that the rise will continue for the foreseeable future.

The usual response to critical erosion on America's shore is stabilization; halting of shoreline retreat by engineering means. Such stabilization of America's shore has been successful in increasing the length of life of buildings built adjacent to the beach. However, stabilization in the long run (50 years ±) and sometimes in a much shorter time frame has resulted in severe degradation of the recreational beach area. Dollar costs of halting shoreline retreat by stabilization is very high. Replacement of the beach by pumping in new sand costs about 1 million dollars or more per shoreline mile each time it is done and it must be carried out repeatedly; commonly in 3 to 10 year intervals. Another approach, the building of seawalls, costs between $100 to $600 per linear open ocean shoreline foot. Combining these cost figures with the 2,000 mile figure of critically eroding shoreline gives some idea of the magnitude of the potential economic crisis on the American shoreline if we continue [illegible] tabilize.

American taxpayers are paying huge sums of money to temporarily protect the private property of a relative few. Furthermore this practice commonly leads to the ultimate destruction of a highly valued public recreational area.

Stabilization costs can be justified for major coastal cities or harbor entraces (Chicago, Galveston, Miami Beach, Coney Island, the Columbia River entrance, for example), but stabilization of most American shores is not justifiable in the broader scope of national interests. Numerous projects, involving public and private money along virtually all developed coastal and lake shores presently threaten most of America's recreational shoreline.

The following summarizes our views on stabilization of America's open ocean shorelines.

1. People are directly responsible for the "erosion problem" by constructing buildings near the beach. For practical purposes, there is no erosion problem where there are no buildings or farms.
2. Fixed shoreline structures (breakwaters, groins, seawalls, etc.) can be successful in prolonging the life of beach buildings. However, they almost always accelerate the natural rate of beach erosion. Resulting degradation of the beach may occur in the immediate vicinity of structures or it may occur along adjacent shorelines sometimes miles away.
3. Most shoreline stabilization projects protect property, not beaches. The protected property belongs to a few individuals relative to the number of Americans who use beaches. If left alone, beaches will always be present, even if they are moving landward.
4. The cost of saving beach property by stabilization is very high. Often it is greater than the value of the property to be saved especially if long range costs are considered.
5. Shoreline stabilization in the long run (10 to 100 years) usually results

in severe degradation or total loss of a valuable natural resource, the open ocean beach.

6. Historical data show that shoreline stabilization is irreversible. Once a beach has been stabilized, it will almost always remain in a stabilized state at increasing cost to the taxpayer.

The consequences of responding to rising sea level by shoreline stabilization are so serious that we urge immediate measures to explore totally new approachs to shoreline management. Such approaches may even involve drastic and unpopular measures such as assuming that buildings adjacent to the beach are temporary or expendable. Equally important, the new approach to shoreline management must incorporate the very significant advances in geologic understanding of shoreline processes that have occurred during the last decades. In the past the American public has been largely unappraised and unaware of the long range environmental and dollar costs of shoreline stabilization. There is a critical and immediate need for the public to know the direction in which American shoreline management is leading.

I. STATUS OF THE AMERICAN SHORELINE

1. We Are Losing Our Beaches

Widespread erosion is occurring on the U.S. shoreline and in some areas the rate of erosion has significantly increased in the past two decades. Many factors are responsible for coastal erosion but it is so widespread that sea level rise appears to be a primary cause. Specific evidence of sea level rise is indicated by tide gauge records not only in American waters but throughout the world. Sea level rise is probably due to melting of ice in high latitudes and it must be assumed that the rise will continue for decades to come. The National Academy of Science recently has warned of continued or even accelerated melting of the ice due to climatic changes related to increasing atmospheric carbon dioxide from consumption of fossil fuels.

Sea level rise along the American coast is believed to be approximately 1 foot per century. On coastal plain coasts, this is accompanied by lateral shoreline retreat orders of magnitude greater than the vertical rise in sea level because of the gentle slope of the coastal plain surface. The present rate of sea level rise should be expected to cause between 500 to 1500 ft of shoreline retreat per 100 years over broad stretches of U.S. coast. Measured rates of shoreline retreat are highly variable ranging from zero to dozens of feet per year. Even though some areas near rivers or deltas are growing seaward, such conditions are unusual, generally local, and considered geologically ephemeral. Shoreline retreat along Mid Atlantic, Southeast Atlantic and Gulf sandy barrier coasts tends to be fairly regular and continuous. Retreat of West Coast, New England and the Great Lakes shores often is more sporadic. Cliffed shorelines occasionally retreat in catastrophic "jumps."

The epitome of the U.S. beach crisis is Cape May, New Jersey. Once America's foremost beach resort, swimmers in Cape May today have difficulty finding any sand to stand on. Cape May City is lined with massive seawalls.

The overall trend of erosion is perhaps most spectacularly illustrated by the present underwater location of old village sites; villages that existed before massive shoreline stabilization was considered an appropriate solution. Examples of such are Cove Point, Washington, Bay Ocean, Oregon, Balize, Louisiana, Edingsville Beach, South Carolina, and Hog Island, Virginia.

Retreat of the American shores does not threaten our recreational beaches. Beaches will essentially remain as they are but will move landward. Shoreline retreat does, however, pose a serious threat to buildings along the shore.

2. Crowding the Shore

Urbanization and construction on barrier islands, cliffed coasts, beaches, and coastal floodplains of the United States have increased markedly in recent years. NOAA (National Oceanographic and Atmospheric Administration) recently estimated that approximately 80% of the U.S. population will reside within easy driving distance of the coast by the year 1990. Mass migration of people to these areas poses immediate and unanticipated problems. Development of barrier islands on the Atlantic and Gulf coasts has brought about the installation of numerous stabilization structures (seawalls, revetments, groins, etc.) to protect coastal property. Development on cliffed coasts creates a distinctly different set of problems.

Between 1948 and 1978, California experienced a benign and quiescent climatic period characterized by few storms capable of generating large storm swell or heavy surface runoff. During this time extensive urbanization occurred along the coast. Studies of tree rings in Southern California show that this was the longest drought period since the 1520's. With urbanization, the ground-water table level has risen along the coast due to extensive watering of non-native vegetation, agricultural irrigation, septic tanks, leach lines and cess-pools; the equivalent of approximately 50 to 60 inches of precipitation per year. This has added weight to cliff material and contributes to landslides and cliff failures. These failures result in immediate and costly stabilization measures which in turn may greatly accelerate beach erosion.

3. Stabilization

Development of the American coastline has led to an endless program to protect investments whether they be individual homes or commercial enterprises. Property owners, because they have built in a dynamic and destructive environment, in many cases at great cost, demand stabilization structures to try and protect their homes and businesses. Many stabilization structures have been used but the most common are seawalls, rip rap revetements, groins and offshore breakwaters. These structures are fixed in space and represent considerable effort and expense to construct and maintain. They are designed for as long a life as possible and hence are not easily moved or replaced. They become permanent fixtures in our coastal scenery but their performance is poor in protecting communities and municipalities from beach retreat and destruction. Even more damaging is the fact that these shoreline defense structures frequently enhance erosion by reducing beach width, steepening offshore gradients, and increasing wave heights. As a result, they seriously degrade the environment and eventually help to destroy the areas they were designed to protect.

Some outstanding case histories prove these points:

1. The Galveston Seawall, America's mightiest, was built in response to the 1900 Hurricane which killed 6,000 people. As recently as 1965, a wide sand beach existed seaward of the wall. The beach has now essentially disappeared from in front of the wall and is being replaced by rows of rip-rap protecting the foot of the seawall. Beyond the west end of the seawall, the natural shoreline is now retreating at 15 feet per year due to the loss of its source of sand in front of the seawall.

2. The Sea Bright, Monmouth Beach, New Jersey shore section has little remaining beach even at low tide. The shoreline is fronted with a massive seawall extending to an elevation of 20 ft above M.L.W. with a cap width of 8 feet. The

wall was built in 1954 replacing an earlier seawall built in 1945. State officials now fear that due to the lack of beach and the much steepened offshore gradient, the seawall may fail completely in a storm. Even now, 25 knot sustained winds produce seawall-topping waves at Sea Bright. Steepening is to be expected in front of all open ocean structures; leading ultimately to the destruction of the seawall itself.

3. During the decade of the 70's and for a good part of the 60's there was no beach at Miami Beach. The seawalls and groins protecting the hotels had destroyed the original "raison d'etre" for this, the most famous of America's beach resorts. TV shows emanating from Miami Beach beaches managed to take advantage of occasional pocket remnant beaches. At a cost of $64,000,000 fifteen miles of Miami Beach were recently replenished. The economic justification for this expenditure of tax money is an assumed income generating 10 times the cost of sand pumping. This may be true for Miami Beach but if the total mileage of critically-threatened American shoreline is considered, the absurdity of the future economic picture of the American Beach becomes clear. Furthermore replenishment is akin to painting a house. It will have to be done repeatedly and probably at ever-shorter intervals.

4. The jetties at Indian River Inlet, Delaware have successfully protected navigable waters for over 50 years. The shoreline here has been receding at a steady 3 feet per year rate. When a replacement bridge was recently built it was placed closer to the sea than its predecessor. This was done for good engineering reasons and also because it was the cheapest construction alternative. Soon after construction the beach retreated to the northside bridge abutments and $715,000 was needed to pump in new sand. We can be assured that every few years from now on a millon dollar replenishment job will be needed to save the bridge. If the bridge had been built on the backside of the barrier island, the problem would not have arisen for 50 years. At what point should the state abandon the bridge? They will soon spend more money protecting the bridge than constructing it.

5. There are other detrimental byproducts of stabilization that must be considered. For example replenishment of Waikiki beach involved replacement of coarse calareous sand by softer muddier calcareous sand. Destruction of the soft beach sand by breaking waves increased the turbidity of the water and killed offshore coral reefs. The replacement of quartz sand by calcareous sand on Miami Beach has resulted in increased water turbidity and is damaging local coral communities.

Frequently, the response to continued beach loss is to begin bigger and more expensive "stabilization" endeavors, which continue to aggravate the problem. Finally, we become locked into a dilemma of costly counter-productive measures - wherein the more we do, the worse the problem becomes. We can, unfortunately, look back on a sad history of small coastal communities originating small "stabilization" projects that attracted and caused an increase in development. This increase brought with it an expanded economic and political base which, when next threatened by beach erosion, demanded even larger coastal defenses. This set in motion a long and needless commitment to defend the development: a commitment doomed for ultimate failure.

In a rational and well-educated society, it is alarming to realize that few if any alternatives to stabilization methods have been seriously proposed or tried. It is time for imaginative, creative, and bold ideas. New ideas and approaches have surfaced from time to time. For example, bypassing of sand past jetties at harbor entrances has allowed beaches to persist where they would have completely disappeared otherwise. It seems clear that we cannot proceed with the "bigger is better" coastal defense scenarios. We know that coastal communities will exist for some time in the future, just as they have been in the past. Yet the "bigger is better" thinking does not provide for intelligent long-range planning. We must consider the "fate" of beaches based on scientific data and interpretation and set in motion a rational policy for living with nature. Our crisis approach to coastal management must come to an end.

4. The Price We Pay for Coastal Stabilization

The price we pay for the installation and maintenance of a "stabilized" shoreline whether it be in esthetic or fiscal terms, is enormous and it is accelerating. Although there are some examples of private sources paying for "beach protection" most commonly it is the taxpayers of the continental hinterlands that pay for shoreline stabilization. It is ironic that many people unwittingly and unknowingly pay for projects that degrade a public resource. Furthermore, this resource frequently becomes increasingly more inaccessible in the areas that receive the greatest infusion of funds. Too often the cost of stabilization is significantly higher than the value of the structure to be protected. The following examples dramatically illustrate the cost of shoreline stabilization:

1. The U.S. Park Service claims that 15 million dollars have been spent on various shoreline stabilization schemes in the vicinity of the Cape Hatteras Lighthouse. Additional plans are in the works to build more massive stabilization structures to save the lighthouse. The cheaper alternative, moving the lighthouse, has not been seriously considered. This in spite of the fact that the shoreline has moved landward almost 3,000 feet in front of the present lighthouse site since the mid 1850's.
2. The previously mentioned Galveston seawall has successfully protected the city over the past 80 years. At the same time, the beach in front of the wall has disappeared, the shoreface has steepened, and wave energy has increased. It is hard to deny the ultimate usefulness of the Galveston seawall. But was destruction of the beach by stabilization of Sea Bright and Monmouth Beach and Long Branch, New Jersey, also worth the cost? In order to save relatively small numbers of buildings, mostly vacation homes, the beach environment in these New Jersey communities has essentially disappeared at great financial cost.

5. Scientific Input into Shoreline Management

Most of our shoreline stabilization has been and is being carried out without consideration or understanding of fundamental principles of shoreline processes. Prediction of economic and environmental impact of shoreline stabilization is frequently done in the context of poor or no understanding of the coastal system in spite of our increased understanding of shoreline processes in the last two decades. Frequently, political considerations override scientific facts. Failure to consider scientific principles leads to increased shoreline damage and increased cost of stabilization.

To stop East Timbalier Island's continued landward migration, and the eventual exposure of Timbalier bay (Louisiana) oil-field installations to waves of the Gulf of Mexico, the oil field owners have "stabilized" the shore with two seawalls, built in the late 1960's. Only the eastern part of the island, the part immediately adjacent to the installations, was stabilized; the western half (downdrift) was left in its natural state. The consequences of this stabilization scheme follow an all too familiar pattern. The eastern half became fixed in space while the western part continued to migrate with rapidly diminished sediment supply. The result as been a segmentation of the island; a deep and wide tidal inlet now separates the two halves. This result should not have surprised anyone; it could easily have been predicted prior to construction of the seawall.

A major shortcoming of design and planning for shoreline stabilization has been the short design-life consideration. Commonly a shoreline erosion problem is considered in a 15 to 35 years context. Yet we have a number of shorelines that have been stabilized for 50 years, where beaches have been essentially destroyed at great cost. Shoreline stabilization schemes that do not preserve the environment for future generations should not be carried out. The public-at-large and not just the few people with threatened buildings, should be clearly informed of the long range consequence of action being taken at the shore.

A second major shortcoming of shoreline stabilization solutions is the failure to understand the shoreline system in a regional context. We now know that beaches may exist in equilibrium with an entire shoreline for many miles. An action that halts the flow of sand at one location may well cause increased shoreline retreat at other locations. On coastal plain coasts, the beach exists in equilibrium with the inner continental shelf. Obtaining sand for beach nourishment from the shoreface or anywhere else within the dynamic system inevitably affects this equilibrium and enhances rates of shoreline retreat.

On cliffed coasts, erosion is episodic. It occurs catastrophically at widely spaced intervals of time. Failure to take the long range view of cliff failure continues to lead to economic and ecologic disasters. Complicating the situation further is the fact that along the Pacific shore, particularly of Southern California, a major source of sand has been cut off by dam construction on rivers.

Plans are in the mill to replenish some of the southshore Long Island barrier beaches (Westhampton Beach) with sand from offshore. Geologic studies indicate that removal of offshore sand (from a depth of less than 10 meters) will simply cause sand to move offshore more rapidly. In other words, the replenishment project bears with it the seeds of its own destruction.

Tybee Island, Georgia is an example of a beach system presently being stabilized on a relatively small scale. Over a period of 100 years more than 75 groins have been constructed at Tybee Island. Today only one of these, the most recent one built in 1974, has any significant effect. The recent history of stabilization projects on this island is fraught with large underestimates of sand volume and dollars required. At one point removal of sand from a nearby inlet to the south actually hastened the erosion of the new beach. Probably much of the long range erosion problem on Tybee is due to dredging of the Savannah River channel to the north, thus removing a natural supply of sand. Channel dredging and beach replenishment are funded from separate bureaucratic pots. Hence, as in many cases along the American shore, potentially good beach sand is removed from a channel and dumped at sea rather than on the adjacent beach.

Scientific input is needed both in long-range, large-scale planning and in community beach-management planning. Simple approaches such as bulldozing sand from the lower beach to the upper beach after storms has proven to be unwise. Such a procedure steepens the beach and increases the rate of shoreline retreat. Beach community officials apparently find this impossible to believe and, despite geological advice to the contrary, continually employ this technique.

II. SOLUTIONS TO AMERICAN SHORELINE PROBLEMS:

ALTERNATIVES FOR CONSIDERATION

Principles common to all immediate solutions are (1) sea level rise and coastal erosion are inevitable, (2) most stabilization and nourishment projects are untenable and indefensible in terms of physical realities, cost-benefit ratios, and escalating budgets, (3) increased public awareness through education is becoming paramount, not only of coastal residents but also regulatory agencies, legislators, and the general American public, and (4) new and in many cases, sweeping, legislation is required to reverse the trend of costly shoreline management practices.

Ultimate solutions to the problem will not be simple. They will involve political, sociological, economic, as well as scientific and engineering considerations. Solutions for the barrier island coasts of the Atlantic and Gulf will differ from the solutions for the cliffed Pacific coast. The solution for a developed New Jersey barrier island will differ from that of a pristine Texas barrier island. Complexity of the "solution" is clearly illustrated by the following alternative approaches to halting the accelerating loss of American recreational beaches.

1. Public Education

Inform all relevant interested parties of long-range and long-distance ramifications of proposed development-stabilization projects --

At present, the general public is unaware of the fact that sea level is rising or that most of the nation's beaches are retreating, whether cliff or barrier island, and that this process is inevitable. For example, few people realize that over the past 150 years, rates of erosion on the Atlantic coast have ranged from 1-3 feet per year to more than 100 feet per year, as documented by such federal agencies as the U.S. Geological Survey, National Oceanographic and Atmospheric Administration, Corps of Engineers, etc. Warning of the likelihood of continued sea level rise by the National Academy of Science must be communicated immediately to the public. Equally important, few people seem to realize that actions taken in one place on the shore may have a profound, direct, and adverse effect on adjacent beaches.

Not only should all interested or involved parties be notified of the attendant physical problems involved, they should also be apprised of the prospective long term financial burden. Economic estimates are that the long-term debt borne by the nation -- especially in view of the federal flood control act, which is stimulating acceleration of building activities in the coastal zone -- will lead to costs on the order of many billions of dollars during the next several decades.

In 1967, the federal government proposed a protection plan for Delaware's shoreline. Long range cost was estimated to be 25 million dollars plus annual maintenance costs. An independent estimate by University of Delaware economists indicated a cost approaching 3/4 of a billion dollars over a 50 year time span. Commonly long range estimates, by the federal government, of beach stabilization costs, fall far short of the mark.

The fate of the American recreational beaches must be determined by a broad segment of an informed populace. In most cases, the monies for coastal management are derived from public rather than private funds. If the American public were aware of its role in funding such projects, i.e., that a Nebraska farmer is helping protect an Atlantic beach house with a private beach, then public support for these projects would quickly diminish.

2. Science

Obtain competent scientific input into shoreline planning --

This is a major principle; failure to do so in the past has resulted in large scale losses of recreational, commercial, and residential property representing both public and private resources. Generally coastal management agencies and the Corps of Engineers have not adequately developed or fully utilized scientific data. In numerous other cases, political considerations have negated sound scientific observations.

Open oceans groins built on Westhampton Beach, N.Y. were constructed against the advice of all involved engineers and geologists. The groins caused severe and immediate erosion to the west. A 40 million dollar federal beach replenishment project is now proposed to save threatened private homes.

3. Alternatives to Structural Stabilization

Halt all stabilization projects immediately whether funded privately or publicly --

In most cases, current efforts at stabilization should cease. Obvious exceptions include certain (1) military reservations, (2) industrial complexes, (3) harbor entrances, (4) densely populated urban areas, and (5) selected resort communities with high economic value with which the general public is not willing to part. Justification for cessation of these efforts hinges on the inevitability of beach erosion problems, uneconomical cost-benefit ratios, and projected exponential increases in coastal management budgets, especially on a long-term basis.

Spend the money slated for stabilization projects to move threatened buildings --

A fundamentally important but often overlooked aspect of expenditures on coastal management projects is that the buildings to be saved are frequently worth considerably less than the amount of money spent in their protection. Costs for removing these structures would be much less than costs for preserving them and would simultaneously remove the basic problem -- artificial perturbations in a naturally dynamic system. "Better to move than to protect."

The Federal flood insurance program moved a number of houses back in 1979 from the shores edge in South Nags Head, North Carolina. One house cost $36,000 to move. The impetus behind this was not to prevent stabilization but to save the Federal government's flood zone insurance program from paying the entire cost of the house when it was consumed by the surf.

Remove threatened buildings next to the beach --

In general, structures of low commerical, residential, or aesthetic value might well be sacrificed. A major impetus for this might be the possibility, otherwise, for damage to adjacent property or the obstruction of recreational beach area. Most important, building removal by whatever means, removes the need for shoreline stabilization.

Destabilize islands and beaches --

The fundamental problem is, as the sea level continues to rise, an artifically stabilized beach becomes more and more "out of equilibrium" with the sea level. This means that more and more "heroic" efforts (bigger seawalls) will be needed.

Can we move seawalls and let nature roll on? Will a natural equilibrium beach be reestablished? Should nature simply be allowed to do the job for us, or should we initiate remedial action? Related questions include, if action is taken to reverse stabilization, who should bear the cost and will these activities create additional, perhaps more costly, coastal problems? Finally, the solution should include the promise that no more development be allowed in the same area in the future.

Exceptions to this general neutralization of structures in the coastal zone include designated areas in which the national interest is affected, such as the preservation of national treasures, and the cases specified previously.

Establish setback lines and conservation easements --

In defining and establishing a buffer zone between stable areas and the shoreline, setback lines and conservation easements should be considered, as well as the "permanence" of the "stable" sites. A setback line is the necessary first step toward resolution of problems and principles addressed in points above. With the certainity of erosion and landward retreat of coasts, of course, a static or permanently defined line cannot be considered as a long-range solution; development and utilization of coastal resources must retreat with the shoreline.

North Carolina is experimenting with a setback line of 30 times the average annual erosion rate. Some islands are so narrow, that this will totally prevent the possibility of development. One solution to this aspect of the problem is the concept of a "rolling" setback line; one that by definition and law would periodically shift landward, or away from the onslaught of erosion. For example, a given oceanward site could be designated as the lifetime possession (30-40 years) of the current landowner, after which time the property would be condemned and vacated.

Inherent in this concept is the prospect of tremendous benefit to the general citizenry through (1) increased access to the nation's shorelines, (2) aesthetic enhancement of a "buffer" area, via parks and other types of open space, provided that condemned structures are removed satisfactorily and (3) a dramatic reduction in public funds otherwise diverted into stabilization schemes.

Establishment of such methods would require that (1) they be adhered to in perpetuity, i.e., no subsequent changes in rules or stipulations except in dire circumstances, that (2) a time frame be instituted, such as the "life expentancy" of buildings involved, and that (3) responsibility for removal and funding be designated.

4. Economic and Political Alternatives

Prevent the use of public funds for redevelopment after the "next" storm --

Destruction of shoreline development by a storm is essentially the only way that artificial stabilization can be halted or reversed. Thus storms on the one hand sow tragedy and destruction but on the other hand, they offer a golden opportunity to reverse beach management strategies that have failed.

Dauphin Island, Alabama has been affected by 20 hurricanes during this century. Three (1916, 1947, 1979) produced maximum damage at the same place, a location controlled by nearshore bathymetry which focuses storm wave energy. The taxpayer paid millions of dollars in Flood Insurance payments for Dauphin Island buildings that were destroyed by Hurricane Frederic in 1979. We taxpayers have just commited well over 50 million dollars to build a new bridge and to reestablish the major development of Dauphin Island at this most senseless of all locations.

There is immediate need for measures to prevent redevelopment after storms. No longer should local, state, and federal governments expend public funds in redevelopment; on the contrary, these governments should assume responsibility for the protection of the public (as opposed to the private) interest, not to recreate an untenable situation or to guarantee recurrent destruction of such properties.

Carefully review all federal expenditures in beach communities regarding their long range impact on natural systems --

The federal government not only is responsible for bearing much of the cost of shoreline stabilization construction, but also the costs of water and sewer systems and flood insurance programs.

A water line was recently laid from Buxton to Avon on North Carolina's Outer Banks. The line, which will support increased density of development in Avon, goes through an area of the Hatteras National Seashore which is highly susceptible to inlet formation during storms. Placement of the pipe in such a danger zone assures the need for large future expenditures of federal funds for stabilization. It is an example of federal expenditure leading to density of development far beyond the natural carrying capacity of the island. Experience tells us the dense development will ultimately lead to stabilization of the shoreline with all of the attendant economic and environmental problems.

Require deeds to state hazards and/or require home purchasers to sign "hazard documents" --

Deeds to shoreline property should clearly state all natural flood and erosion hazards known at the time of validation of the deed. Descriptions of hazardous conditions may change as new data accumulate and/or as scientific knowledge and technology advances with refinements.

III. FUTURE NEEDS

It is readily apparent from the numerous examples of submerged and stranded jetties, multiple seawalls, and groins now detached from the shoreline that many stabilization projects have been failures. It is further shown by the need to continually repeat renourishment programs that were initially supposed to "solve the problem" once and for all. Too often these expensive attempts at stabilization occurred because (1) the engineering solution to problems created by natural processes were undertaken without consideration of the magnitude and significance of the process itself, (2) failure to consider how artificial structures affect the environment, (3) failure to measure, describe and accurately interpret processes that occur in the vicinity of the stabilization project, (4) lack of appreciation of the fact that coastlines are systems, not components, and (5) completely ignoring the solid evidence for sea level rise.

We are clearly at a point today when decisions relating to coastal erosion can call upon a vast reserve of research results and capabilities as well as innovative technology. The fact that we continually fail to do so is absurd. The responsibility rests on the shoulders of shortsighted politicians, developers and coastal engineers among others who, through ignorance, haste, or in response to political pressure, fail to utilize the results of available research reports, the tools and techniques developed from coastal research and the talents of numerous highly qualified research scientists. Federal engineering organizations counter this argument by saying they have invested millions of dollars in coastal research and indeed they have. But time and again we find they have asked inadequate or inappropriate questions.

Another major blunder that stands out clearly in assessing what has gone awry is the failure to look at the short and long term economic realities of attempts at shoreline stabilization and beach renourishment. These include direct and indirect costs involved and cost-benefit ratios in light of the long term significance of causes and effects of coastal erosion. Many attempts at artificial stabilization should never have been undertaken in the first place. Many others should be stopped immediately and no new projects should be initiated until a solid, unbiased economic study is made and it is clearly determined who will benefit and who will suffer, what it will cost and who will initially and eventually pay for the project.

Coastal research has made tremendous strides in terms of shoreline dynamics and processes. There is much that remains to be done but the accumulation of knowledge in the past 20 years is remarkable. During this same period of time our coasts have undergone extensive economic development until at the present time there is extreme human-induced stress being applied to the coastal zone. This is obvious in many coastal areas and is reflected in the concern expressed by various environmental groups and by the numerous task forces, workshops and meetings dedicated to coastal urbanization.

Traditionally, problems of shoreline erosion are "solved" by the quickest and cheapest methods. But there are no quick and cheap solutions to "problems" that are the result of long term processes. Managers have failed to consider the long term costs and the cost/benefit ratios involved. Past, present and future coastal programs must be evaluated by using a combined scientific-economic yardstick. In most examples we have been able to ferret out there is a predictable scenario that occurs in dealing with beach erosion on a "developed" coast:

A. Buildings are constructed along the shore, erosion occurs and threatens the building, short term remedies are given to slow or "stop" erosion.
B. Temporary success encourages new building, however ongoing erosion occurs and it is now accelerated because (1) the artificial structures accelerates the rates of erosion by steepening the beach profile and/or (2) the structures were poorly designed or improperly placed, and (3) the sea level rises and makes the beach "out of equilibrium."
C. At this point there has been an increased tax base and accompanying increased hue and cry to again stop erosion, etc.

This is a seemingly endless cycle of events which, due to a compounding of errors and poorly-thought-out decisions, becomes increasingly more expensive. By the time someone is willing to admit it wasn't worth the initial expense even if it had worked, the shoreline has been so highly developed that engineers, planners, politicians are totally locked into a program of continued commitment.

An immediate need exists to determine realistic costs and cost-benefit of shoreline management. In retrospect many such projects should never have occurred to begin with. Granted we are tied to certain existing programs, but it is not too late to blow the whistle on some and to refuse to initiate others. Future cost/benefit studies must include experienced geologists, economists, and engineers who have no vested interest, and who can (1) dig out the subtle realities of hidden costs, (2) put into their estimate the role of sea level rise and (3) apply state-of-the-art knowledge of coastal processes.

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STATEMENT OF JAMES G. WATT, SECRETARY OF THE INTERIOR, BEFORE THE SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE, ENVIRONMENTAL POLLUTION SUBCOMMITTEE, ON S. 1018, THE COASTAL BARRIER RESOURCES ACT, OCTOBER 21, 1981.

Mr. Chairman, I am very pleased to testify today on S. 1018, the Coastal Barrier Resources Act. This legislation presents an opportunity for substantial savings in Federal expenditures, and at the same time recognizes the environmental and recreational values of this Nation's undeveloped coastal barriers.

From Maine to Texas, our coastline is fronted by long, narrow landforms composed of unconsolidated and shifting sand. They form a natural defense against coastal storms and hurricanes, substantially reducing the power and force of these storms before they reach the mainland. While they are hazardous and expensive for human habitation and development, coastal barriers are excellent habitat for fish and wildlife. They also provide open space and public recreation opportunities. Increasingly, however, actions and programs of the Federal Government have facilitated and even encouraged development in these areas. Then, when these developed areas suffer inevitable erosion and storm damage, the government spends substantial amounts of money assisting in reconstruction and stabilization. Thus, taxpayers subsidize initial development, a hurricane sweeps the area, the taxpayers via government assistance encourage rebuilding, and the cycle begins again.

S. 1018 would establish a Coastal Barrier Resources System, comprising undeveloped and unprotected barrier structures on the Atlantic and Gulf Coasts of the United States. The bill would prohibit new Federal expenditures and financial assistance on these coastal barriers.

Section 6 of the bill sets forth exceptions to the general prohibition on new expenditures and assistance. The first exception allows the exploration, development, production, or transportation of energy resources which can only be carried out in coastal areas. Because of the national need to reduce our dependency on foreign energy sources, I believe any coastal barrier conservation program must allow uses and facilities appropriate in the exploration for, and extraction and transportation of, oil and gas, especially from the Outer Continental Shelf Lands. Additionally, the identification, extraction, and transportation of energy sources have a finite life; upon depletion, such activities will cease as a matter of course. Section 6 also contains other exceptions designed to assure the continuation of necessary Federal activities, such as military activities, which will not promote further development of coastal barriers.

In addition, we note that paragraphs (1) and (2) of section 5(b) define the terms "new expenditure" and "new financial assistance" to exclude situations where funds have been appropriated or where a legally binding commitment was made before the date of enactment of this legislation. This approach will provide a necessary transition period for those projects that are already underway and for which Federal assistance has been earmarked either pursuant to appropriation or legally binding commitment.

What this legislation does not do is equally important. S. 1018 does not direct the Federal Government to undertake any new land acquisition, nor does it authorize appropriations for acquisition purposes. The bill does not prohibit the issuance of Federal permits for activities on these coastal barriers, nor does it pre-empt local government zoning and permitting authorities. Furthermore, it is not intended to supplant the Coastal Zone Management Act. In fact, we would consult with State CZM officials in carrying out the purposes of the legislation. S. 1018 complements the CZM program by providing Congressional guidance on the proper Federal role in any future development of the relatively few undeveloped, unprotected coastal barriers.

Mr. Chairman, I congratulate you and Congressman Evans on this legislation. You have recognized that the Federal Government should not dictate what private property owners may or may not do with their property, but also that taxpayers should not shoulder the recurring costs and high risks of private development on coastal barriers. Because we believe it likely that private industry will assess the financial risks far more carefully in the absence of Federal assistance, and exhibit greater sensitivity to the costs, development is likely to take place on only the least hazardous and most stable coastal barriers. This legislation is a balanced and light-handed approach to an environmental concern, one that does not see the stifling of free enterprise as the only means to the desired end.

Coastal barriers are, in varying degrees and for multiple reasons, hazardous for development. The first reason is the simple fact that the sea level is rising in relation to the land. On the Atlantic Coast, the sea level appears to be rising at a rate of about one foot per century.

Second, the unconsolidated sand of coastal barriers routinely moves about while the works of man require stability. The normal migration of unaltered coastal barriers -- what we term erosion when the coastal barrier is developed -- is often quite rapid. It is not at all unusual for several hundred thousand, even several million, cubic yards of sand to be moved by littoral currents past a given point on a beach during the course of a year.

Lands now considered safe for building by many people may become extremely hazardous or may simply disappear within a few years. On Folly Island in South Carolina, for example, the Army Corps of Engineers predicts that within 50 years, if shoreline erosion continues at present rates, about 40 percent of the houses now standing there will be in the sea. Another island, in Florida, has lost 700 feet to the ocean in the last 30 years. Construction is also taking place on what only a few years ago were inlets open to the sea. Since former inlets tend to reopen, these developments are especially hazardous.

The third factor making coastal barrier development risky is the islands' vulnerability to hurricanes and other storms. Coastal barriers are generally low lying and storm surges easily overwash and inundate entire sections or breach them to create inlets. Yet vulnerable areas are often redeveloped after a storm. For example, Westhampton Beach on Long Island was hit by a 1938 hurricane, which destroyed all but 23 of 179 homes. By 1980, more than 900 new homes had been built on that same coastal barrier.

Federal assistance comes in a variety of forms ranging from direct expenditures, such as grants for highway and bridge construction and beach stabilization, to indirect assistance in the form of loan guarantees for home construction or casualty loss tax deductions. In addition, Federal flood insurance and disaster assistance programs have in the past substantially reduced the true risk of development on coastal barriers. The National Flood Insurance Program has become the second largest liability against the Federal Treasury after the social security program. The Federal Emergency Management Agency estimates that it now has $10 to $15 billion in flood insurance coverage on coastal barriers.

On the mainland, these financial assistance programs may be reasonable methods for promoting community development and growth. However, on inherently hazardous coastal barriers any such benefits are greatly offset by rapidly escalating and recurring costs, especially following major storms.

Even after a phase down in the flood insurance program under the recently enacted Omnibus Budget Reconciliation Act of 1981, substantial Federal expenditures would remain. The Federal Government spent approximately $800 million during the past six years in assisting construction on coastal barriers, not including flood insurance. During this period, for example, Environmental Protection Agency grants for the construction of sewage treatment facilities on coastal barriers exceeded $400 million. The Army Corps of Engineers spent more than $100 million for beach erosion control and restoration and flood control. The Economic Development Administration used $90 million to support activities that promoted development of coastal barriers. The Department of Transportation financed highway and bridge construction on coastal barriers, costing taxpayers some $80-90 million. The Farmers Home Administration committed better than $50 million to coastal barrier development in the form of insured and guaranteed loans and grants.

These Federal expenditures have been sizeable, but what of the future? With no change in Federal policy, the present value of Federal expenditures on undeveloped coastal barriers over the next 20 years could cost the American taxpayer from $5.5 billion to $11 billion for initial construction--depending upon the degree of development. In addition, continued subsidized development may impair the important resource and recreational benefits which are contributed by coastal barriers.

One out of every four Americans lives within 100 miles of the Atlantic or Gulf Coasts. Coastal barriers are central to the lives of many of these citizens, either through direct use and enjoyment of the beaches, or indirectly because they provide habitat to a wide variety of fish and wildlife species that benefit large numbers of people.

Coastal barriers create and maintain wetlands and estuaries which nurture fish stocks vital to commercial and recreational fishing. From Long Island, south, the ocean boundary for most estuaries is created by these coastal landforms. More than 80 percent of the shellfish and finfish caught by sport fisherman on the Atlantic and Gulf Coasts are dependent upon these estuaries during some stage in their life cycles. Moreover,

over 90 percent of the U.S. commercial catch in the Gulf of Mexico and more than 80 percent of the commercial harvest on the Atlantic coast is comprised of species dependent on coastal barrier habitats. In 1980 these percentages of the commercial harvest translated into a dockside value in excess of a billion dollars.

In addition to fishing, it is difficult to visit any Atlantic or Gulf Coast beach from spring through fall and not observe people clamming, crabbing or shell collecting. Waterfowl hunting was one of the earliest sport uses of coastal barriers and remains a popular activity. Birdwatching and nature observation are also rapidly growing recreational uses of these habitats. The most recent National Survey of Fishing and Hunting indicates that approximately $1.1 billion is spent annually on these pursuits in the 18 Atlantic and Gulf Coast States, the most significant portion of which is directly associated with coastal barriers.

This statistic is not surprising when one considers, for example, the large populations of migrating and wintering waterfowl which rely on coastal barriers and their associated wetlands. Over 40 percent of the Atlantic Flyway black duck population depends on the marshes created and maintained by coastal barriers to sustain them during the winter months.

The Texas coastal region supports more than 50 percent, and at times as much as two-thirds, of the Central Flyway waterfowl population each winter. While the habitat of these populations is not confined solely to coastal barriers, the areas of highest concentrations are located there. For instance, 80 to 90 percent of the world population of redhead ducks winter in the Laguna Madre which is created and maintained by Padre Island, a coastal barrier.

In addition, more than 20 endangered or threatened species find habitat on coastal barriers. These include endangered raptors such as the bald eagle and peregrine falcon, as well as the whooping crane, Eastern brown pelican, manatee, American crocodile and the green, loggerhead, Ridley and hawksbill sea turtles. Many more species dependent upon coastal barriers, like the osprey, have been recognized by the States as needing special consideration if their survival is to be assured.

Mr. Chairman, while it is extremely difficult to generalize about the natural resources of coastal barriers and adjacent waters, it can be said that these resources are significant. From the salt pond ecosystems of southern New England, to the sea islands situated off Georgia and South Carolina and the massive barrier structures of the Texas coast, there is no question that these habitats contribute large numbers and a great diversity of fish and wildlife resources, which are used and enjoyed by many.

Before I close, Mr. Chairman, let me make a brief report on our progress in implementing the provisions of the Omnibus Budget Reconciliation Act of 1981. As you know, that Act prohibits the sale of Federal flood insurance for new construction or substantial improvements of structures on undeveloped coastal barriers after October 1, 1983. I am assigned the responsibility under that Act of designating undeveloped coastal barriers where new flood insurance coverage will be restricted. Soon we will publish in the Federal Register a notice of the procedure which we intend to use in carrying out this responsibility. Within the latitude afforded by this legislation and its legislative history, we will further refine terms such as "coastal barrier" and "undeveloped" to provide a firm definitional basis for actual designations.

This Notice of Intent will also set forth the very public process by which our task will be accomplished. We hope to have a draft definitional framework and draft maps available for public comment in January followed by other opportunities for public participation. At that time, I plan also to meet with the Governors and many Members of Congress to gain their first-hand knowledge of the coastal barriers in their States.

As required by the law, the results of this public study and the proposed designations -- as they may be revised as a result of public comment -- will be provided to Congress by August 13, 1982. We hope to issue our final interpretation of the definitions and final designations in the fall of 1982, to give the Federal Emergency Management Agency and private property owners ample time to prepare for the cut-off of new flood insurance.

In conclusion, Mr. Chairman, the Reconciliation Act and S. 1018 chart a sensible course to conserve both hard-earned tax dollars and the natural resources of coastal barriers. I believe that your carefully considered proposal is precisely the sort of imaginative environmental legislation we need--legislation which can solve real problems in the stewardship of our natural resources, while at the same time, responsibly addressing America's equally serious economic problems. However, we need to conform S. 1018 to the provisions of the Reconciliation Act in determining which coastal barriers will be affected.

Although the Administration has no objection to passage of your bill, I think you will agree, Mr. Chairman, that the key to making this bill effective is a workable definition of undeveloped coastal barriers. As I have stated, my Department is responsible under the Reconciliation Act for designating undeveloped coastal barriers, and to do that we must refine that definition. In the next few days, my staff will have a draft for my consideration, and I then want to meet with you and your colleagues in the Congress to refine the definition further. A workable definition--to use in implementing both the Reconciliation Act and S. 1018--will ensure the success of this legislation, and I am anxious to work with you to achieve that success. If I were to give you just verbiage today on how much I support your bill--without making provisions for how we are going to make it work--the critics would attack us both. By agreeing today to work through the definitional process together, we can ensure that the goals we jointly seek through this bill will be achieved.

This concludes my prepared statement, Mr. Chairman. The Department and other affected agencies will forward proposed technical amendments to you shortly. I will be pleased to answer any questions you or other Subcommittee members might have.

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Statement of

Laurance Rockefeller

Americans for the Coast

Before the

Subcommittee on Environmental Pollution

Committee on Environment and Public Works

United States Senate

Washington, D. C.

October 21, 1981

I thank you for the opportunity to testify on behalf of Americans for the Coast. Our national committee was formed by 90 leaders in business, labor and civic affairs to win protection for the nation's undeveloped barrier islands. We believe that the legislation, S.1018, which you have authored, Mr. Chairman, is a giant step towards this goal.

We commend you for your leadership and applaud the 19 Senators who already have joined as co-sponsors. We are pleased to note that they span the political spectrum and include respected conservatives like Senators Simpson and Roth -- a fact which parallels the presence in our ranks of William F. Buckley, Jr.

At the time of the bill's introduction, another American for the Coast, Robert S. McNamara, summarized the reasons why we strongly support enactment of the Coastal Barrier Resources bill:

> This legislation will curtail the costly federal subsidies which promote hazardous development on America's remaining unspoiled barrier islands, and as a result, it will save lives, taxes and a critical national resource.

The subsidies he referred to constitute a vast array of federal grants ranging from bridge construction and water supply to mortgage insurance and erosion control. Their minimum cost to the treasury exceeds two hundred million dollars a year, as documented by a Department of the Interior impact study.

Lives

The opportunity presented by the Chafee-Evans bill to save lives should be realized. Too many persons have perished in storms that swept over their low-lying barrier islands for the federal government to continue subsidizing construction there.

The American National Red Cross emphasizes this point. As stated by William Sande, Vice President for Disaster Services:

> The tragic vulnerability of barrier islands development to storm and sea -- the National Hurricane Center terms them "death traps" -- argues for a change in the present federal policy which has inadvertently encouraged many people to build on these extremely hazardous coastal sites.

Barrier island residents are particularly vulnerable to the "storm surge" that accounts for nine out of 10 hurricane-related deaths (and also claims lives in fierce winter "north-easters"). With escape routes cut by fast-rising sea levels, they confront a massive dome of water driven by wind and low pressure and itself topped by waves, which may extend 50 miles at landfall and raise sea levels 30 feet above mean tide. That is what happened, for example, along the Gulf Coast during Hurricane Camille in 1969, which killed 256 coastal residents.

The potential for a major human disaster becomes clear when one considers the low elevation of all barrier island development. For example, 60,000 new residents of southwest Florida near Tampa live on barrier islands at an average height of five feet above sea level.

In fact, since 1900, when 6000 persons died on Galveston, a Texas barrier island, the toll has mounted. Yet somehow we have not learned.

The result? On Westhampton Beach, New York, where the 1938 hurricane left only 26 out of 179 houses standing, there are now 900 houses. On Beach Island near Wilmington, North Carolina, where Hurricane Hazel in 1954 left only five out of 359 homes standing, there are 2000 homes today. On Padre Island, Texas, condominiums are being built atop filled-in cuts made by Hurricane Beulah in 1967 and near overwash zones of Hurricane Allen in 1980.

The question before Congress is: should this cycle of construction, disaster, and reconstruction continue to be underwritten by the federal government on the undeveloped barrier islands? We believe it should not.

Critical resource

By its subsidy curtailment, the Chafee-Evans bill indirectly will shift some coastal development to safer mainland areas. To the extent that presently undeveloped barrier islands remain undeveloped, the legislation will protect essential wildlife habitat, spectacular scenery and outstanding recreation opportunities for the future. We agree with the National Wildlife Federation that the opportunity to conserve this critical resource should be realized -- and soon, for the islands are urbanizing at twice the national rate.

Taxes

Two thousand years ago, Mr. Chairman, Jesus warned us in his Sermon on the Mount that only fools build on sand. Well, today they are still at it, on our barrier islands -- only now it is at taxpayer expense.

Understandably, the taxpayers have grown restless and want this burden lifted. As articulated by Howard Jarvis, in his usual understated way:

> "It's time to end this outrageous federal boondoggle! Why waste our taxes to chop up islands and risk lives?"

Speaking for the National Taxpayers Union, Legislative Director David Keating stated:

> "People who insist on building in such hazardous areas should no longer be able to do so at taxpayer expense -- and the Chafee-Evans bill assures that they will not, at least in presently undeveloped island areas."

Just how much money would passage of S.1018 save the taxpayers? An April, 1981 study prepared for the Council on Environmental Quality and three other agencies estimated the savings, in present dollars over a 20-year period, would range from $5.56 billion in a "low development" case, to $10.77 billion in a "high development" case. That is the total future cost which might be avoided if present subsidy programs are curtailed on the undeveloped barrier islands. Otherwise put, the average federal subsidy which S.1018 would save is $27,050 per developed acre in the "low development" future and $45,475 per acre in the "high" future.

The case for ending this subsidy seems even more compelling when one considers that it benefits mainly the affluent. As noted in a May 24th article in the Myrtle Beach, South Carolina Sun News:

> "Barrier island homeowners are among the wealthiest of Americans. Detailed buyer profiles conducted by the three local communities [Kiawah Island, Seabrook Island, and Isle of Palms] say the average buyer is in his mid-40's, with an annual income exceeding $90,000, and with a net worth in the $250,000 range."

The price of a beachfront lot on Seabrook Island -- which, incidentally, was submerged under 20 feet of water in an

1893 hurricane -- is $225,000, for one-quarter acre. While lots on other islands sell for less, a question of equity remains: is it fair to ask the American taxpayer to keep down the purchase price of beachfront lots for a select few? At a time of widespread cuts in basic government services, can a subsidy for second homes and condominiums by the sea be justified?

Moreover, these federal subsidies do not end once the island infrastructure and buildings are in place, but extend to their reconstruction. For example, the bridge to Dauphin Island, Alabama, the key to its original development, was destroyed in 1979 by Hurricane Frederic and is being rebuilt at a cost to the federal taxpayer of $39 million -- or an average of $24,375 for each of the barrier island's 1600 full-time residents. In New England, the costs mount for the 40 "northeasters" which pound the shores each year; one February 1977 storm inflicted $500 million in damage.

So one asks : where island coasts are still undeveloped, does it make sense to subsidize new construction?

S.1018 says "no."

We agree and note that its policy change will stem the fiscal drain due not just to original construction and sudden catastrophes but also to the gradual erosion and movement which characterize the unstable, shifting sands that are barrier islands, and cause buildings to fall into the sea. Not all of the islands erode as dramatically as one in Florida which has lost 700 feet to the ocean in the last 30 years, or another in Mississippi that has disappeared entirely -- but all barrier islands do erode. The Chafee-Evans bill respects that natural process and curtails on undeveloped barriers the costly federal effort, as by seawalls, to hold back the sea -- an effort reminiscent, in its futility, of King Canute.

Coastal management

The Chafee-Evans bill respects the Coastal Zone Management Act and neither duplicates nor conflicts with it.

Under that law, states and localities are encouraged to guide coastal land development and use their zoning authorities -- a matter from which the Chafee-Evans bill stays clear. The bill would complement the existing coastal act, however, by reducing the immense pressures for unwise development which the availability of heavy federal subsidies have generated on barrier islands -- often overwhelming state and local planning efforts.

This consideration was important to the Department of Commerce, the agency which administers the Coastal Zone program, in deciding to support the Chafee-Evans bill. In a May 29th memorandum to the Cabinet Council Task Force on Barrier Islands, the Department declared:

> "We believe the states will support legislation to limit such unwise subsidies because it will assist them in making desirable, but potentially controversial, long-term decisions concerning the development of their coasts. A recent resolution passed by the Coastal States Organization states that 'Federal funding assistance that supports and stimulates development of undeveloped barrier islands and beaches should be eliminated.'"

The Chafee-Evans bill, moreover, would not affect the continued authority, albeit largely unexercised, which states have under the "consistency" clause, Section 307, of the Coastal Zone Management Act: to deter federal permitting which conflicts with approved state coastal plans.

Let it be recognized, however, that with recent budget cuts in the federal coastal program and its uncertain future, states will receive less federal planning funds and hence have less incentive to honor even the modest federal standards for conservation which are conditions to the funds' receipt.

In fact, three coastal states -- Virginia, Georgia, and Texas -- are not subject to those standards at all, because they have chosen not to participate in the federal coastal program. As noted in the same Department of Commerce memorandum, the three states contain more than one-third of both the total acreage and beach mileage of the undeveloped barrier islands.

The Coastal Zone Management Act, in other words, has no effect on one-third of the undeveloped barrier resource. These islands would be affected, however, by the Chafee-Evans bill. Their inclusion is appropriate, for it belongs to the federal government to decide where savings are to be made in federal expenditures.

Opposition

The Coastal Barrier Resources bill makes sense. It will save lives, taxes and a critical national resource. Does any interest oppose it?

Sad to say, the National Association of Realtors does, and the Homebuilders -- "sad," because S.1018 advances the fiscally conservative principles which they have espoused for years.

The Chafee-Evans bill deserves their full support as a budget-balancing, deficit-shrinking, free market-restoring measure which will get the government out of a foolhardy business and off the backs of taxpayers.

Instead, these interests seek delay, in hopes that this past summer's budget bill cut-off of federal flood insurance -- a key subsidy of island development -- can be rescinded through their efforts before it becomes effective in two years, and the momentum towards passage of S.1018 slowed.

These realtors worry about the bill's precedent for other land areas -- not recognizing that the uniquely hazardous nature, readily definable boundaries, isolation and limited acreage of the remaining undeveloped barrier islands present a special case for curtailing development subsidy.

They say that specualtive investors in island real estate may be hurt -- despite their remaining free to develop. In fact, profits may be less without subsidy -- but so will the taxes which paid for the subsidy.

We ask the Realtors and Homebuilders to reconsider their present position.

Conclusion

The sooner the Chafee-Evans bill becomes law, the greater will be the savings in lives, taxes and a critical resource. With this incentive in mind, we encourage you to mark up the legislation this fall; to ratify the flood insurance cut-off and speed its effective date; and to seek early approval by the full Senate.

Please count on our full support.

Thank you.

TESTIMONY OF JAY D. HAIR
ON BEHALF OF THE NATIONAL WILDLIFE FEDERATION
BEFORE THE SUBCOMMITTEE ON
ENVIRONMENTAL POLLUTION
CONCERNING S.1018
THE COASTAL BARRIER RESOURCES ACT

Mr. Chairman, my name is Jay Hair, Executive Vice President of the National Wildlife Federation. The National Wildlife Federation is composed of affiliates in all fifty states, Guam, Puerto Rico, and the Virgin Islands and Associate Members numbering almost 4.5 million persons. The National Wildlife Federation is concerned with the wise use and conservation of our nation's natural resources. I appreciate the opportunity to testify before this subcommittee on the pending legislation, S.1018, the Coastal Barrier Resources Act, because it will foster the conservation of coastal barriers and important fish and wildlife resources.

Barrier islands and beaches are unique. These long, low, sandy strips of land off the Atlantic and Gulf coasts are constantly on the move. The paradox of barrier islands is that they must be in constant flux to remain in equilibrium with the immense power of the ocean. They cannot, as we would like, remain immobile in the face of incessant waves, storms, and rising sea level.

There are two ways in which barrier islands move. First, barrier islands respond to the off-shore motion of the waves, littoral drift, pushing sand along the beach. In this way, barrier islands migrate up or down the coastline with one end of the island eroding and the other end building. This motion forms an interdependent linkage between islands resulting in the transfer of sand, soil, plants and nutrients from one island to the next. Barrier islands also move inland or seaward in response to fluctuating sea levels and the deposition of inland sediments from coastal river systems. Currently, the sea level is slow rising and barrier islands are moving toward the mainland.

Ironically, a barrier island's stability comes from its transitory nature. As man inflicts his "stabilization processes" to control island migration, the static shoreline is placed in increasing disequilibrium because the shoreline wants to move. With this increasing stress the shoreline becomes steeper, sand to replenish losses is trapped behind seawalls or groins, and the rate of erosion actually increases.

The greatest demand for barrier island development is on primary dunes. Leveling a dune for construction eliminates the sand replenishing function of the dune and, again, accelerates island erosion. Dunes are very fragile. Mere foot travel can sometimes cause their destruction.

Development can also harm the inland shrub and maritime forest, not only by leveling the trees and vegetation which hold the island together, but also by over-utilizing the groundwater supply. Communities using the freshwater supplies of an island will draw down the freshwater table, allowing saltwater to intrude on the water table. Resident plant species of the inland forest, unable to tolerate a switch to saltwater, will die.

Finally, development inevitably brings with it the dredging, dumping, filling, and polluting of essential marsh areas, rendering them useless and sometimes deadly to finfish and shellfish.

According to a draft report of the Heritage Conservation and Recreation Service on barrier islands, between 1950 and 1974 slightly more than 137,000 acres on barrier islands were added to the urbanized category, while nearly that many were removed from the wetland category.

The unique nature of barrier islands and beaches has also created unique ecosystems for fish and wildlife habitat. Threatened and endangered species such as loggerhead turtles, bald eagles, brown pelicans, and sea oats are found there. Migrating birds and waterfowl use the islands, bays and marshes as resting and feeding areas. Up to 80% of the most important sport and commercial fish and shellfish species depend on the estuaries and wetlands provided by the islands and beaches for some part of their life cycle. In 1980, this amounted to $669 million being paid to Atlantic and Gulf coast commercial fishermen estuarine dependent fish species alone. Like the islands themselves, these fish and wildlife resources are dependent on the healthy functioning of the island's natural processes.

Barrier islands and beaches also provide unique recreational resources. More than 25% of the U. S. population lives within 100 miles of a barrier island. Their use for boating, hiking, swimming, fishing and hunting has become important as a respite and change from our cities and our work.

The importance of barrier islands and beaches as storm buffers for the mainland and the economic value of their fish and recreational resources is unquestioned.

Yet some have argued that because some islands and some parts of coastal barriers are more stable than others that federal policies should distinguish between the more and less hazardous. This ignores the dynamic interdependence of the coastal barrier ecosystem. As long as the system is left undisturbed, it or parts of it may be relatively stable. Once trees are leveled and vegetation removed, roads built, and sewer lines laid, the dynamics of the ecosystem change. The trees and vegetation can no longer hold the sand together, the roads and sewer lines weaken the equilibrum between sand and water so that the island becomes less stable and unable to maintain its form and shape when battered by inevitable storms and hurricanes. Coastal barriers begin to disintegrate when we try to put permanent structures on them, destroying themselves and the dependent fish and wildlife resources.

The flood damage from Barrier Island development is a particularly disturbing problem. The National Science Foundation says in its Report on Flood Hazard Mitigation that "flood losses in the United States are grim, indeed, and are projected to increase." The Water Resources Council estimates that by the year 2000, $6 billion in 1980 dollars will be spent on flood damages annually if floodplain management standards improve. With improved floodplain management, the damages could rise to $8.7 billion annually. In the past and certainly in the future, even with the legislation before you today, barrier island development will continue to be a large part of those flood damages. A good example is Dauphin Island, Alabama, where federal expenditures to put the island back together after Hurricane Frederick passed over it in 1979 have mounted to

$50,000 for each of the residences and total more than $45 million. While recognizing that a commitment has been made to these developed islands, we endorse S.1018 because it says the federal government is not going to follow bad policy with more bad policy.

To a large extent, the culprit in barrier island development is the federal government. With its subsidies, grants, and insurance programs, the federal government not only allows this destructive and often foolhardy development, but actually underwrites, encourages, and perpetuates it. According to the latest estimates $750 million was spent between 1975-80 on infrastructure development on barrier islands. (See attached) This is a constantly recurring expense. A study by the Texas Coastal and Marine Council found that (1) installation of utilities to a barrier island cost more than for the mainland (2) bridges and causeways to barrier islands are generally longer than for the mainland and therefore cost more and (3) while roads on barrier island do not appear to cost more, maintenance is substantially more than mainland roads. Their conclusion was that it cost two to six times more to provide this infrastructure on barrier islands than on the mainland. When you add to that the inevitable costs of rebuilding the facilities after storms and hurricanes, the cost to the American taxpayer is enormous.

By subsidizing the higher costs and greater risks associated with barrier island development, the federal government has interfered with the normal working of the market place.

A recent article in the Myrtle Beach, South Carolina, Sun News extols the money to be made in barrier island development, reporting that in a few hours of one morning the Kiawah Island Corporation sold $10.2 million in real estate. Two months later another $7.4 million was sold in less than a day. Company officials for three barrier island development corporations in Charleston County, South Carolina, said $310 million had been invested, mostly in the last three years. with the expectation that in the next eight years the investment will reach $1.1 billion in 1981 dollars. This is for development on only three barrier islands. We believe the elimination of flood insurance for undeveloped barrier islands, as contained in the Budget Reconciliation Bill, was a step in the right direction. We urge the Committee to approve The Coastal Barrier Resources Act and eliminate the other enormously costly subsidies.

We are glad to see the positive step taken by this Subcommittee in holding hearings about this important segment of our country's natural resource base. S.1018 recognizes that we must redirect federal investments away from the shifting sands of coastal barrier islands. In times of fiscal austerity, there are better ways to spend federal funds than on subsidized destruction of these fragile outposts.

Federal Expenditures on Barrier Islands

Environmental Protection Agency (EPA)

- 208 Program - planning monies for non-point pollution and wastewater treatment facilities
- Construction Grants Program - funds 75-85% of construction costs of publicly owned wastewater treatment facilities

FY'75-'80 - $459,694,380

Source: House Hearing HR 5981

Department of Transportation (DOT)

- Grants for highway, road, and bridge construction (FHWA)
- Grants for airport development (FAA)

FHWA FY'76-'78 - $37.4 million

Source: HCRS "Report of the Barrier Island Work Group"; House Hearing 5981

Dauphin Island Bridge $38 million

Source: House Hearing 5981; Sheaffer & Roland "Barrier Island Development Near 4 National Seashores"

FAA FY'75-'80 - $7.4 million

Source: House Hearings 5981;

Housing and Urban Development (HUD)

- Community Development Block Grant funds for water and sewer infrastructure and other projects

FY'75 - $3.5 million water and sewer grants

Source: HCRS "Report of the Barrier Island Work Group"

Economic Development Administration (EDA)

- Grants ranging 50-80% of development costs for water and sewer systems, access roads, harbor facilities, tourism facilities

FY'75-'80 - $92.392 million

Source: House Hearing 5981

Farmers Home Administration (FmHA)

- Emergency Loans to cover losses resulting from designated disasters - interest rates at 5% and 13%
- Loans and grants for Water snd Waste Disposal Systems for Rural Communities - interest rate prior to October 1, 5%
- Community Facilities Loans for transportation, industrial and business development, community social, cultural, health, and recreation benefits - interest at 5%
- Rural Housing Site Loans for purchase and development of land in rural areas for subdivision purposes - interest at 13 1/4%
- Grants for recreation facilities

FY'75-'80 - $44.0 million - loans
9.7 million - grants
Total: $53.7 million

Source: House Hearings 5981

Army Corps of Engineers (COE)

- Funds for flood control, navigation, and shore protection projects

FY'75-'80 - $12.8 million, beach erosion
$14.6 million, flood control

Source: House Hearings 5981

FY'75-'80 - $28.2 million, beach erosion
$14.7 million, flood control
$ 6.5 million, emergency protection

Source: DOI Barrier Islands EIS

FY'76-'78 - $33.5 million, shoreline protection
$65.0 million, Miami Beach renourishment

Source: HCRS "Report of the Barrier Island Work Group"

Federal Emergency Management Agency (FEMA)

- Flood Insurance (FIA)
- Disaster Relief

FY '78-'80 - $43 million for claims from only 90 barrier island communities
$10-$15 billion estimated insurance coverage on BI

Source: Lewis Testimony on H.R. 3252

Examples of claims payments '78-'80
$4.6 million, South Padre Island
$16 million, Gulf Shores
$ 2. million, Dauphin Island
$82.5 " Galveston County in 1979
Houston Post 9/10/81

Small Business Administration (SBA)

- Disaster Relief Loans - interest at 3% primary homes and 9¼% secondary homes, 8% business loans. These rates went up in August.

- Loans to meet Federal Water Pollution Control Act Amendments, interest at 8¼%.

In House hearing on H.R. 5981, Peter F. McNeish, deputy associate administrator for finance and investment of SBA, stated that their computer was not programmed in such a way to obtain SBA expenditures on barrier islands. Data is collected on a county-by-county basis. Analysis would involve 23 coastal offices, some 20,000 loans which would have to be looked at case-by-case for barrier islands.

One Example:

SBA has issued 527 flood disaster loans totaling $4,288,600 for Cape May County, New Jersey. This is in the absence of a major coastal storm during this period.

Source: SBA agency records in a motion for summary judgment; Cape May Grene, Inc. v. Warren (EPA)

Coastal Energy Impact Program (CEIP)

- Grants for construction of facilities on or affecting barrier islands

FY '79-'80 - $1.8 million

U.S. Commercial Landings, By Regions, and By Percent of Estuarine Dependent Species, 1980

Region	1980[1] Thousand Pounds	Thousand Dollars	Percent Estuarine[2]	Landed Value of Estuarine Dependent Catch
New England	788,089	327,299	9.3	30,439,000
Middle Atlantic	244,034	96,534	70.5	68,099,000
South Atlantic	473,457	148,377	87.7	130,127,000
Gulf	1,979,115	463,205	88.6	410,400,000
Total				$639,055,000

1. Source: Fisheries of the United States, 1980. U.S. National Marine Fisheries Service (NOAA). Value is dockside. Retail value is approx. 3X higher.

2. Based on percentages calculated by J. L. McHugh for the marine fish catch in 1963. Some variability of these percentages could be expected, but present day values should not be significantly different.

Note: The Chesapeake Bay was not included in these values, or percentages.

Nearly two-thirds (63.7%) of the total commercial catch for the Atlantic and Gulf Coasts is estuarine dependent. Barrier islands and spits are essential in providing estuarine habitat.

COASTAL BARRIER RESOURCES ACT

WEDNESDAY, FEBRUARY 3, 1982

U.S. Senate,
Committee on Environment and Public Works,
Subcommittee on Environmental Pollution,
Washington, D.C.

The subcommittee met at 10:05 a.m., in room 4200, Dirksen Senate Office Building, Hon. John H. Chafee (chairman of the subcommittee) presiding.

Present: Senators Chafee, Stafford, Gorton, and Mitchell.

OPENING STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator **Chafee**. Good morning, ladies and gentlemen.

This is a meeting of the Environmental Pollution Subcommittee of the Committee on Environment and Public Works. We are delighted that the chairman of the full committee. Senator Stafford, is here.

Senator **Stafford**. Thank you, Mr. Chairman. I am here to listen and to learn, and I will yield all of my time to the witnesses.

Senator **Chafee**. I would like to welcome everybody here to this third, and we expect to be final, hearing on the Coastal Barrier Resources Act.

Just for a little bit of background, the thrust of this legislation, which was introduced in the House by Congressman Tom Evans and by myself in the Senate, is to prohibit the Federal Government from funding commercial and residential growth on undeveloped barrier islands and beaches. This is a policy which will save Federal tax dollars and at the same time will help conserve some of this country's most beautiful and fragile landforms.

It has been estimated that in the next 20 years, it could cost this Government as much as $11 billion if we continue our current policy of funding development on barrier islands and beaches. With the enactment of the Coastal Barrier Resources Act, the taxpayers will save an estimated $200 to $500 million a year and at the same time protect these national treasures.

I would like to stress that this legislation does not change State or local laws nor is it a Federal land use planning scheme. Private property rights are still protected under this bill. Landowners are free to do what they want with this land. We don't zone, we don't take land, but what we do say is if private property owners wish to develop their land, they do it at their own financial risk, not at the risk of the Federal Government.

This morning we will be hearing from witnesses representing coastal areas that will be affected by this bill as well as hearing from the Department of Interior representatives which have begun to implement the provisions in the Budget Reconciliation Act which prohibited Federal flood insurance after October 1, 1983, about 2 years from now. This flood insurance, which is prohibited, applies to undeveloped barrier islands and beaches along the Atlantic and gulf coasts.

I met recently with Interior Secretary Watt to discuss these undeveloped barrier areas. I would like to take this opportunity to commend the Secretary and his staff for their superb effort in assembling the maps which we are going to consider today. They have done it in a very short period of time. I would like to also thank Ric Davidge, Bob Peoples, Harty Pierce, Diana Hoobler, Pete Raynor, and Bill Gregg for the long days and weekends they have spent on this work. It is very, very complicated. I had a chance to look at it the other day and it seems to me they have done a fine job.

I look forward to incorporating the views of our witnesses today into a final bill which I hope will be quickly referred to the full Environment Committee and the entire Senate for early passage. So we thank you all for being here. We are delighted that Senator Gorton is here. Senator, do you have anything you would like to say?

Senator **Gorton**. Thank you very much, Mr. Chairman. I am happy to be here and look forward to hearing from the witnesses.

Senator **Chafee**. Let's move right along. We have seven witnesses. I would ask that each witness keep his or her time to about 7 minutes. I have to leave here no later than 11:45. Mr. Ric Davidge, special assistant to Assistant Secretary for Fish, Wildlife, and Parks.

STATEMENT OF RIC DAVIDGE, SPECIAL ASSISTANT TO THE ASSISTANT SECRETARY FOR FISH, WILDLIFE, AND PARKS, DEPARTMENT OF THE INTERIOR, ACCOMPANIED BY PETE RAYNOR AND BOB PEOPLES, COASTAL BARRIERS TASK FORCE

Mr. **Davidge**. Good morning, Mr. Chairman.

Senator **Chafee**. Go ahead, Mr. Davidge.

Mr. **Davidge**. With me at the table today is Pete Raynor from the solicitor's office who is a member of the coastal barriers task force and Bob Peoples who is also a member of the coastal barriers task force from the U.S. Fish and Wildlife Service.

Mr. Chairman, it is a pleasure to be here today to report on our progress in implementing the Omnibus Budget Reconciliation Act of 1981. That act, as you know, requires the Secretary of Interior to designate undeveloped coastal barriers along the Atlantic and gulf coasts of the United States. The statute amends the National Flood Insurance Act to prohibit the issuance of new Federal flood insurance and its coverage beginning October 1, 1983, for new construction or substantial improvements of structures located on undeveloped coastal barriers designated by the Secretary of Interior.

Senator **Chafee**. Mr. Davidge, you are going to have to move rapidly if we are going to get through this. I think we want to get to your views on the maps and so forth. So move right along. Would you summarize please?

Mr. DAVIDGE. Certainly. Why don't I speak directly to some of the issues.

Senator CHAFEE. Fine. We will put your statement in the record.

Mr. DAVIDGE. On January 15, we released draft definitions, draft maps, and draft factsheets which accompany each map to approximately 500 reviewers along the Atlantic and gulf coasts. These definitions, of course, implement or further clarify the statutory definitions in the act.

These documents are the result of considerable study by the department, consultation with appropriate congressional staff, including your staff, and the consideration of public comments that we received as a result of the maps that were sent out at your request, Mr. Chairman, in response to your legislation, S. 1018. We have assimilated all of this information and applied it to the draft maps which we have published. I am sure that you are aware of some of the changes that have taken place on our maps in relationship to the draft maps identified by your legislation.

For example, the Omnibus Budget Reconcilation Act list contains 25 more areas than does the Chafee-Evans list. This is the result of 7 areas being deleted while 32 new areas were added. Of the 134 areas included in the Chafee-Evans maps, 64 are the same as the draft delineations we have made under the Reconciliation Act; 47 of the Reconciliation Act units contain less area than those identified under the Chafee-Evans bill; 20 units under the Reconcilation Act are larger than the Chafee-Evans units, the net result of which is an additional 94 miles of beach is included under the draft Reconcilation Act delineations.

Let me speak specifically to some of the definitions. It is our responsibility to do the following: identify areas that are coastal barriers; determine which of these areas are undeveloped; and determine which of these areas are otherwise protected.

We have taken the statutory language very literally in defining coastal barriers. First, they must be geological features which consist of unconsolidated sedimentary material. Second, they must be subject to wave, tidal, and wind energies, and third, they must protect landward aquatic habitat from direct wave attack.

The examples which were listed in the statute we believe are just examples and, as such, are not exhaustive.

Not all areas that we have delineated are islands. In fact, I have made it very clear to the task force that when we speak of coastal barriers, we are speaking of coastal barriers not barrier islands. The key in the delineation of nonislands, if you will, is that they protect landward aquatic habitats.

Let me turn now to the definition of what is "undeveloped"—"few man-made structures" I believe is the language of the law. Simply a legal right to develop, that is, permits, et cetera, is not addressed in the act. So for purposes of our draft maps, we have not considered this documentary evidence of future development.

Instead, Congress delayed the date of implementation of the act until October 1, 1983, to allow people to get ready for the cutoff of Federal flood insurance.

The term "structures" refers to a building with walls and a roof. In general, we have used the density threshold of more than one structure per 5 acres of fastland to categorize a coastal barrier as developed.

Legislative history refers to "infrastructure," and we have defined it as access to each lot, plus the reasonable availability of some combination of utilities and services.

In general, structure and infrastructure concepts have been applied to each discrete segment of a unit separated by natural features or by intervening protected or developed areas. There is one exception. We have not created a new discrete segment where there is a large, single ownership, 100 or more lots, being developed under a phased development plan which can be documented from the outset of the project.

There are three reasons for this approach. First, this has been the practice by the department in previous delineations. Second, we believe it is consistent with the intent of Congress to provide a transition period for development. Finally, there is no break in ownership at the edge of the developed area. The phased development concept appears to apply to three areas involving 2,000 acres, compared to more than 700,000 acres included in our draft maps.

We must also determine whether any structures or man's activities significantly impede geomorphic and ecological processes. This criterion applies only if it impedes the long-term perpetuation of the coastal barrier system. It does not relate to activities that mimic, enhance, or restore natural systems.

We have defined "otherwise protected" areas as areas within the boundaries of Federal, State, or local areas or owned by qualified conservation organizations held primarily for wildlife, recreation, or natural resource conservation purposes. The interest owned must be adequate to protect the area and the organization must be qualified, meaning a publicly supported charity with a commitment and resources sufficient to protect the conservation purpose. Where the draft maps include an area which reviewers believe to be otherwise protected we have suggested that they provide a legal opinion regarding the nature of the owner, and the interest held, and purpose of ownership.

I know that you have some questions, Mr. Chairman, and I would just like to thank you for your compliment of the task force. It is made up of outstanding professionals within the Department of the Interior as well as the Office of FEMA. The task force has spent many weekends and long nights, particularly in the assimilation of the maps. That process, alone, took us about a week and a half as a result of the snow that interrupted our efforts.

Senator CHAFEE. Thank you very much, Mr. Davidge.

Before we start the questions, I would like to welcome Senator Mitchell here. The Senator is a very active member of this subcommittee. If you have a statement, we will be glad to receive it now.

Senator MITCHELL. Thank you, Mr. Chairman.

I simply want to say that I am a cosponsor of the legislation with you, Mr. Chairman, because I believe it is extremely important protecting our fragile coastal resources. I have, of course, a particular interest coming from a State which has one of the longest coastlines in the Nation. So I congratulate you, Mr. Chairman, on your activity in this area and look forward to hearing from the remainder of the witnesses.

Senator CHAFEE. Thank you very much, Senator Mitchell.

Mr. Davidge, what we are trying to avoid here as much as possible is having two sets of maps. You are coming up with a set of maps under the Reconciliation Act dealing with the flood insurance. We will be coming up with a set of maps dealing with prohibiting further Government subsidy of development in these lands. So there is considerable merit in having the maps jibe. Ideally, if they could both come out the same, that would be the best answer. You are circulating your maps, as I understand it, March 15, an important date for you, and we would be interested in receiving back the comments that you get on your draft maps and definitions. Can you send us copies of those?

Mr. DAVIDGE. Yes, Mr. Chairman; we will make the files available to your staff as well as to the public after the close of the comment period. I would point out, however, that we are closing the comment period March 15, but we will accept comments as late as March 22. So after March 22, we certainly will be more than happy to make available all the material that we have received.

Senator CHAFEE. In doing your maps, you recognize what you term "phased development." I am glad that the phased development only comes to 2,000 acres out of it, I believe you said 700,000 total that you considered that is encompassed in your draft maps. There is some sense, I think, to the term "phased development" as opposed to mere paper development. But the question, of course, comes up in dealing with phased development, are you opening the flood gates? How are you going to resist the claims of others? Do you think you have delineated phased development carefully enough, infrastructure, the, I take it, roads, sewage pipes, so forth, have been installed, clearly planned to tie into a whole? Is that basically the way your term "phased development" works?

Mr. DAVIDGE. Yes, Mr. Chairman; we have set restrictions on the application of phased development. One is that it must be a single ownership. Two, it has to be in excess of 100 building sites. Three, you have got to see a documented commitment to the entire development plan prior to the passage of the Omnibus Budget Reconciliation Act.

I was interested when we began to deal with this question what it would mean when we got down to the maps. I was, frankly, surprised we only ended up with three areas affected by this concept in the draft maps. So I think the criteria we have applied are pretty tight.

Senator CHAFEE. Well, I think it is, too. I just hope you can stand firm against the so-called paper development. Others come in and say they truly have a phased development because they have some big plans. So I congratulate you that you have been able to hold it down to these three areas of 2,000 acres.

Mr. DAVIDGE. We have, Mr. Chairman, and as you know, the Secretary is committed to a firm position.

Senator CHAFEE. Good; I encourage him to do that.

Senator Stafford.

Senator STAFFORD. I have no questions, Mr. Chairman.

Senator CHAFEE. Senator Gorton.

Senator GORTON. Could you just simply, for our purposes here, describe where those three developments——

Mr. DAVIDGE. Three areas?

Senator GORTON [continuing]. Are located?

Mr. DAVIDGE. Mr. Peoples would like to speak to that.

Mr. PEOPLES. They include a portion of the Currituck Banks, N.C., area, a portion of Kiawah Island, S.C.

Senator CHAFEE. That is right next to Hilton Head, isn't it, that second one?

Mr. PEOPLES. A little further north, between Hilton Head and Charleston, yes. And the Palm Coast area in Florida.

Senator CHAFEE. What is the last one?

Mr. DAVIDGE. Palm Coast area in Florida.

Senator CHAFEE. That is a true New Englander. Good.

Senator MITCHELL. I know where it is.

Thank you, Mr. Chairman. Mr. Davidge, last fall the Governor of Maine, in response to an inquiry by the Deputy Director of the Fish and Wildlife Service asking for comments on the three areas in Maine which were included in the act, commented on those three areas and then sent in a statement including 10 additional areas that the State of Maine suggested for inclusion within the act. I would like to have your comments on the status of that suggestion regarding including additional areas in Maine within the coverage of this act.

Mr. DAVIDGE. Senator, the State of Maine and local jurisdictions are extremely supportive of this effort. We have received letters from Governor Brennan and the towns of Scarborough, Kittery, and Kennebunk, is that how you say it?

Senator MITCHELL. Kennebunk. The Vice President lives there so you better learn to pronounce it.

Mr. DAVIDGE. Kennebunk. In general, we found our information to be very consistent with theirs. They did suggest adding several areas in addition to those which were included in the draft maps for S. 1018. We have added three areas, Jasper, Pond Island, and Cape Elizabeth. The other areas which Governor Brennan suggested were not included either because they were too small, less than a quarter of a mile of beach, or they were located in a bay.

Bob, do you have anything you want to add to that?

Mr. PEOPLES. No.

Senator MITCHELL. Let me understand, Jasper and Pond Island are going to be included?

Mr. DAVIDGE. Yes, sir; and Cape Elizabeth.

Senator MITCHELL. There were two separate areas in Cape Elizabeth that were suggested. Do you know which one has been included?

Mr. PEOPLES. Yes, sir, both areas have been included.

Senator MITCHELL. Fine. So if we count the two from Cape Elizabeth, there will be four additional areas included for Maine.

Mr. DAVIDGE. Four areas in three units. For the purposes of our drafting maps, we call it three and the Governor calls it four. I think we are all right.

Senator MITCHELL. Thank you very much on that. Let me ask you a separate and a completely unrelated question just to clarify one point in my mind.

If there are dwellings currently in existence on any units to be included within the system which are presently covered by Federal flood insurance, will those dwellings continue to be covered by Federal flood insurance and, second, will that coverage continue even if the dwelling is sold to another owner?

Mr. DAVIDGE. We have discussed this with FEMA and it is their advice that the answer is yes, to both of your questions. Yes, it will continue to be covered and, yes, it will be covered even after it is sold and repurchased.

Senator CHAFEE. However, if it is destroyed by a hurricane, then the new structure, if it is rebuilt, will not be covered. In other words, they get just one bite out of the apple.

Mr. DAVIDGE. Yes, sir.

Senator MITCHELL. The coverage is limited to existing structures?

Senator CHAFEE. To existing structures and if there is, I think the term is significant damage, substantial damage, then the rebuilding is not covered.

Mr. DAVIDGE. Or, Mr. Chairman, if there was a significant addition to the structure, that addition would not be covered.

Senator MITCHELL. Thank you, Mr. Chairman, Mr. Davidge.

Senator CHAFEE. I think it would be good to have it in the record, Mr. Davidge, that you are encouraging hearings by the Governors and others along the areas concerned so that plenty of people will have a chance to be heard.

Mr. DAVIDGE. Mr. Chairman, the Secretary, I thought, made a very interesting decision prior to the President's speech on New Federalism, but certainly anticipatory of that speech and that is to call on the Members of the Congress and the Governors that are affected by these delineations to hold workshops and seminars on the draft maps. This follows a model which we have looked at in South Carolina which was extremely effective.

We have had a number of inquiries from Florida and we will be providing assistance to that State for a couple of workshops down there. We know that some other States are going to have workshops. Some of them are tying in other issues, general coastal issues if you will, to the discussion of these delineations. We are being extremely supportive. All we ask is people let us know quickly so we can get it on the agenda.

Senator CHAFEE. When people read about 700,000 acres not qualifying for flood insurance, they may think that is an awful lot of lands. Indeed is it not true that much of this is wetlands.

Mr. DAVIDGE. Yes, sir, much of it is. I think we have some figures on how much of it is. Bob?

Mr. PEOPLES. Yes, we do; of the 737,000 acres, approximately 183,000 acres would be fastlands. The remainder would be wetlands or open water.

Senator CHAFEE. Final question. We generally heard it expressed that of the total barrier beaches starting in Maine and running right around the gulf coast that a third are developed, a third are in some form of protection, State or Federal, Audubon, National Conservancy, something, and the third is available for development or protection. Is that roughly so?

Mr. PEOPLES. Yes, sir.

Senator **Chafee**. It is extraordinary that a third that is not under protection now is still available.

Mr. **Peoples**. Yes.

Mr. **Davidge**. Mr. Chairman, one of the interesting things in reviewing the draft maps is how many of the units which we have delineated are directly adjacent to otherwise protected areas. My thumbnail sketch would be better than half.

Senator **Chafee**. Contiguous to a protected area.

Mr. **Davidge**. Mr. Chairman, if I might, I would like to point out that we have already begun receiving groups of land owners and their attorneys to look at evidence on the level of development in some of these areas. One thing that I would like to point out, however, is that the Secretary is absolutely firm that we will cut off the comment period on March 15. We don't have a choice, in our opinion, because of his responsibility to make the report to you and to the Congress by the statutory date later this year. So we will hold firm to that and I would hope those who are going to be affected by these delineations will come in early and quickly and we can begin to review their materials.

Senator **Chafee**. Thank you, and I would just like to say as one member of the committee, I hope you stand very firm on your decisions and on your maps. Don't let too many sweet songs capture your ear.

Senator **Mitchell**. Unless it comes from the chairman.

Senator **Chafee**. No; anything else, gentlemen?

Thanks a lot, Mr. Davidge. Keep up the good work.

Dr. Neil Frank, Director of the National Hurricane Center in Miami.

STATEMENT OF DR. NEIL FRANK, DIRECTOR, NATIONAL HURRICANE CENTER, MIAMI, FLA.

Dr. **Frank**. Good morning, gentlemen.

I appreciate the opportunity of chatting with you a little bit about the impact of hurricanes on barrier islands. I would like to start out by saying that hurricanes are not freak accidents of nature that are designed to inflict death and destruction on mankind. We tend to believe the opposite, don't we, because we measure the impact of hurricanes by how many people died and what the death toll or the dollar damage was. But quite the opposite is true. Hurricanes perform a very useful function in the atmosphere.

You see, because the way the Sun shines on the Earth, we get too much heat in the tropics, and not enough heat in the polar latitudes; therefore we have to have some way of mixing this up. Nature has found that hurricanes are very effective in doing this. So when a hurricane forms, it really represents the tropical atmosphere boiling, and when hurricanes move into higher latitudes, they remove the heat from the tropics. If man would learn to live in harmony with nature, we would certainly minimize our problems.

If you go to the west coast of this country and build your home on a fault line in California, don't fuss about earthquakes; if you come to the east coast of the United States and build your home on a barrier island, I don't think it is fair to fuss about hurricanes. I think hurricanes have a right to sweep our coastline every few years. I am not sure it was intended for man to live on the barrier islands.

So be it. Thus we have a hurricane problem. I submit to you it is a manmade hurricane problem. In the decades of the 1960's, we had a 13 percent increase in the number of people who lived in the United States. We had a 40 percent increase in the number of people who found their way to the beautiful way of life on the barrier islands or on the bay shores.

There are three things we worry about in hurricanes--wind, rain, and storm surge. The storm surge is devastating on the barrier islands. It may be 50 miles wide and sweeps across the coastline near the point where the eye makes landfall. It is the rise of water with big waves on top of it; what I am telling you is barrier islands go under water.

What does a storm surge do to barrier islands? Let's take a look in past history in several places in the United States and see if we can learn any lessons.

In 1938, a major hurricane moved up into the Northeastern part of the United States, swept across the eastern part of Long Island, on into the southern coast of New England, and West Hampton Beach on the eastern part of Long Island. There were 179 homes on one of those barrier islands before the storm; after the storm, 28 remained. I was out there a couple of years ago and counted 900 homes.

Senator **Chafee**. Nine hundred?

Dr. **Frank**. Nine hundred in that same area. Let's go to the Jersey coast in the 1800's. They had three very bad hurricanes that altered sections of Brigantine Island. It is a beautiful island north of Atlantic City. They have an interesting problem on the Jersey coast. There is a natural migration of the sand from the north to the south which kept filling up that inlet. So our good friends in Brigantine went to the Corps of Engineers a few years ago and asked them if they could solve the problem. The Corps of Engineers built a jetty on the north side of Absecon Inlet. Do you know through the years a big sand bar has collected there. The city of Brigantine recently sold that property off and a builder is putting 250 homes on that sandbar.

In 1821, the waters of the Atlantic met Delaware Bay. Many of the cuts in the Outer Banks of North Carolina were created by past hurricanes. In 1954, Hurricane Hazel moved inland west of Wilmington where there is a little island called Long Beach Island. There were 356 homes along that island before the storm; after 18 feet of storm surge, only 5 remained.

There are 2,000 homes in that particular area today.

You come down on the South Carolina coast to where Seabrook, Kiawah, and Hilton Head are located. In 1893, 20 feet of storm surge, associated with a severe hurricane swept those islands and killed 2,000 people; 1893 was a bad year for hurricanes because we lost 2,000 people on the Louisiana coast.

You come into Florida and the barrier islands are one continuous development. We have great concern that we may not be able to evacuate everybody from the barrier islands with the roadway systems we have at present and with the leadtime that we can provide with our warnings.

Recent evacuation studies have been completed in a number of locations that show it is going to take over 20 hours to evacuate everybody from the Florida Keys area. If you go to the Florida west coast around Fort Myers, a five-county area there, it is going to take 27 hours for a complete evacuation; the Tampa Bay area 18 hours; and in Galveston Island it is 26 hours; and yet my office has never advertised we can provide over 12 hours of leadtime for evacuation purposes.

You go to Texas where Key Alegro is one of the finest new developments we have along our coastline. It is about 30 miles northeast of Corpus Christi. I went into that development a couple of years ago and asked them if they had a hurricane problem, and they said they have been there 12 years and "never saw water in the street; we are protected by this barrier island offshore here."

In my travels around the coastline, I find all kinds of reasons why people are protected from hurricanes and most of them are false. When I looked into Texas history and I found there is a place called Indianola, famous for its hotels and restaurants, known as the New Orleans of Texas, where the inhabitants thought they were protected by that barrier island. Then in 1875, a bad hurricane came along, pushed water right over that barrier island into Indianola, and destroyed a good bit of the city, but the citizens started to rebuild again; 11 years later, in 1886, they had a repeat and destroyed what remained of Indianola. The only thing that remains of Indianola today is a cemetery. You could go there and find the headstones, 1885, 1886. You go south on Padre Island, where Hurricane Beulah, 1967, caused over 30 new wash overs through that island. In time, sand fills in most of those cuts, and I can show you condominiums today that are built on some of those old wash overs.

The people who own that property seem to be surprised they have a problem keeping the breeze out in front of it. The worst hurricane disaster we had in the United States occurred in Galveston in 1900. We lost 6,000 lives in that terrible storm. We witness a 16-foot seawall there to keep that from happening again. Then we went behind the seawall and jacked all the buildings and filled them in to 17 feet, an absolutely marvelous engineering feat for that period of time. That seawall as done a nice job of protecting the city of Galveston.

It hasn't done much for the beach. All the sand has moved away from the beach. A lot of that sand has collected on the southeast tip of Galveston Island. Did you know in the last 10 years, a developer has put a new condominium on Galveston Island ahead of that seawall, and I understand a second permit has now been granted for another condominium out there.

I am here to tell you today we are more exposed to the hurricane in the United States than we have ever been in our life. If we have one of these bad blows in the near future, we can lose more lives than we lost in the Galveston hurricane in 1900. As you continue your deliberations on this interesting piece of legislation, I encourage you to remember there is more than economic and physical resource on the barrier islands, there is also a human resource and it is very exposed.

Senator CHAFEE. Doctor, you have been very succinct and effective. I was interested in your comments about South Carolina because you mentioned some of the losses of life there. Some of the islands that fall within the suggested maps are referred to as sea islands. The belief is they should not be considered under this legislation. Yet it seems to me these, indeed, are hazardous areas.

Dr. FRANK. Absolutely.

Senator CHAFEE. That is your conclusion?

Dr. FRANK. Yes, sir, all of those islands along the South Carolina coast, most of them have average elevation, probably less than 10 feet. If you get on Hilton Head Island, I think there is a place or two there where it might be higher than that. If you have a 20-foot storm surge, the island is going to go under water.

Senator CHAFEE. Senator Gorton.

Senator GORTON. No questions.

Senator CHAFEE. Senator Mitchell.

Senator MITCHELL. You cited a number of instances of severe hurricanes and the damages. Is there any predictability, is there any pattern? Is anybody able to say with any degree of probability that there will be occurrence in a particular area at any time?

Dr. FRANK. No; you are asking about cycles of hurricanes.

Senator MITCHELL. Right.

Dr. FRANK. There may be cycles but we don't have a long enough period of recordkeeping to establish validity in those cycles. Our records only go back about 100 years. If you take a look at the major hurricanes that hit the United States over, say, half a century, you will find in the decade of the 1960's and 1970's, they were all in the Gulf of Mexico. In the decade of the 1950's they were up the east coast of the United States, and in the decades of the 1940's, it was over Florida. It has been 20 years since we had a flurry of hurricane activity.

I don't know when that is going to change. Some day it will.

Senator MITCHELL. You can't tell whether that represents any cycle of any kind?

Dr. FRANK. No, sir, absolutely not. The important question I think is whether we are ready if the cycle does return.

Senator MITCHELL. Thank you, very much, Doctor.

Senator CHAFEE. Doctor, some of the opponents of this act are suggesting that we are being discriminatory in that we are abandoning flood insurance along the coast where the hurricanes occur rather than inland areas where, for example, tornadoes might occur with some frequency. Is there a difference between the probability of tornadoes and the probabilities of hurricanes based on your experience?

Dr. FRANK. You can define very easily the areas that will be impacted by hurricanes. When you talk about tornadoes, you are talking about vast areas of many States and it is very difficult to isolate what parts of those States are more vulnerable than others. But the coastline and the barrier islands are very vulnerable and it is easy to identify those areas as being susceptible to the hurricane.

Senator CHAFEE. Fine; we think you are an excellent witness, Doctor. Thank you for coming. Appreciate it.

Dr. Frank. Appreciate the opportunity.

Senator Chafee. Mr. Eric Jankel from the American Planning Association.

Senator Chafee. Mr. Jankel, we welcome you here, a fellow Rhode Islander. You are representing the American Planning Association which, as I understand, is headquartered in Chicago.

Mr. Jankel. Chicago and Washington.

Senator Chafee. Why don't you proceed, Mr. Jankel. You have a statement which you can read if you wish, but please be aware of the time constraints and keep it to 7 minutes, if you would.

Mr. Jankel. I will summarize the statement for you, Senator.

Senator Chafee. And we will put the statement in the record.

STATEMENT OF ERIC R. JANKEL, EXECUTIVE DIRECTOR, NARRAGANSETT BAY WATER QUALITY MANAGEMENT DISTRICT COMMISSION, PROVIDENCE, R.I., MEMBER, AMERICAN PLANNING ASSOCIATION

Mr. Jankel. Senator Chafee and members of the subcommittee, I am Eric Jankel, executive director of the Narragansett Bay Water Quality Management District Commission in Providence, R.I., and a member of the American Planning Association.

I am here today to provide the subcommittee with the comments and recommendations of the association.

The APA is a national organization of over 21,000 city, regional, and State planners, elected and appointed officials at all levels of government, professional practitioners, educators, and interested citizens. Many of our members are deeply involved in day-to-day decisions affecting the Nation's vulnerable coastlines.

The APA membership belongs to 46 chapters in every State and congressional district in the United States. The association's primary objective is to advance the art and science of planning for the improved development of communities, cities, regions, States, and the Nation.

The association maintains a set of planning policies which address a wide range of issues of concern to the membership and are developed through a national consultative process.

The association's support for this bill stems from its policy which maintains that: "The natural function of barrier islands, as well as wetlands, marshes, estuary areas, reefs and dunes must be preserved, enhanced and, where possible, restored."

The concept of a coastal barrier resources system as embodied in S. 1018 and its companion in the House, H.R. 3252, is a recognition by the Congress and the Federal Government of the special ecological value these landforms hold for all types of living resources.

It is further a recognition that the sensitive ecology of these areas depends upon the inevitable and constant alterations from wind and sea.

We have often seen the tragic loss of life and wildlife habitat, as well as property damage and environmental harm, where man has attempted to settle on the shifting sand and develop the undevelopable.

While the association fully supports the concept embodied in S. 1018, we would like to offer a few special comments which the association believes would improve the bill. I would like to highlight the association's comments for you this morning.

The objectives of the bill, Senator, would be furthered where States and localities which have immediate jurisdiction over development also take supportive actions at the local level. An example, from our neighboring State of Massachusetts. Through the Wetlands Protection Act and regulations adopted by the coastal zone management program of Massachusetts and a recent Governor's executive order, restrictions have been based on State-assisted or State-permitted development on barrier beaches.

Obviously this is consistent with the Department of Interior's work through the Cape Cod National Seashores in trying to preserve that area. Such local initiatives may be helpful elsewhere and should be encouraged.

Section 4 of S. 1018 establishes the system. In subsection (A)(2), there is a definition of an undeveloped coastal barrier. The definition relies on the extent of damage of previous development. The association would urge recognition of 4(A)(2) of the remaining protective functions of individual coastal barriers. Certainly coastal barriers vary from the Gulf of Mexico to New England, but the determination of whether a specific coastal barrier is undeveloped should be based upon its unique protective capacity and not man's past footprint.

The maps prepared by the Fish and Wildlife Service, which are used as a reference in S. 1018 could be supplemented by the Service through a review designed to identify coastal barriers which have prospective protective value and deserve inclusion in the system in spite of man's previous activities.

The Service could report to the Congress on this point at the time of its report required by section 10(A)(1).

Section 5 of the bill, Senator, sets forth the limitations on Federal expenditures within the system.

Subsections (A) (1) and (2) prohibit the purchase of structures in certain facilities. The association believes that in certain circumstances where the cost-benefit ratio is favorable, the acquisition of manmade features would be consistent with the purposes of the bill.

Even after passage of the act, there will continue to be a great deal of pressure to modify the boundaries of coastal barriers and to provide exceptions. There must be in the legislation more specific procedures, including a formal review process, to discourage potential abuses in the designation of coastal barriers, in boundary modifications and in the exceptions process.

For example, in the case of the exceptions approach, prospective use of coastal barriers for energy development purposes should be made only if such development does not endanger existing areas of natural beauty, cause a threat of damage to the ecological systems, or emit air pollutants at levels significantly higher than those permitted at inland locations.

S. 1018 recognizes the need for coordination, consultation with and comment from local governments.

The success of this program will require the cooperation of local governments and the Secretary should consult directly with those officials as well as with the Governors.

A tremendous amount of current and sound and comprehensive planning by States and localities has taken place, including planning under the coast zone management program. We would urge that the Secretary's recommendations called for in section 10(c), the State and local objectives reflected in those plans.

Finally, Senator Chafee, we have an example of the need for this legislation in our own State of Rhode Island. In 1975, the town of South Kingston enacted an amendment to its zoning ordinance prohibiting residential construction on the barrier beach complex at Green Hill which had been designated a high flood danger district.

A private party later purchased a three-quarter acre lot on Green Hill Beach, was denied a building permit by the town, and then filed an action in Rhode Island Superior Court arguing that the town's action constituted a taking of private property without compensation.

The superior court, in *Annicelli* v. *Town of South Kingston,* decided against the town. The town has filed an appeal to the Rhode Island Supreme Court based upon misconceptions about the hazards of development on barrier beaches, proper tests to determine whether environmental regulation and local action to protect public health and safety constitute compensable taking.

This is an example of a community acting in the public interest to protect against the loss of life and property. Clearly, if S. 1018 were law, the incentives for development of Green Hill would be lessened, without the infrastructure of roads and bridges, the assurance of Federal moneys to reconstruct, development pressure would be lessened.

The enactment of a Coastal Barrier Resources Act by the Congress would reduce the potential liability on the U. S. Treasury and the taxpayer and it would save lives and would preserve critical wildlife habitat.

Let me end my testimony by saying all the members of the American Planning Association join me in thanking you, the chairman of the committee, for focusing on coastal barrier protection.

If we can provide any additional input to your process, we would be pleased to do so.

Senator CHAFEE. Thank you very much, Mr. Jankel. The views of you and the association are extremely helpful.

We will incorporate your suggestions into our thinking as we firm up just how to proceed. I would note that your first point dealt with taking recognition of what the various States or localities are doing. It seems to me that we don't have a conflict there, as I see it, in that we don't prohibit any coastal zone management by the States or the local communities.

All we do is say we are not going to federally subsidize roads, infrastructure and then if that can be supplemented by what the localities do, that is all for the better.

Mr. JANKEL. I would agree with that. I think it is a question as the National Park Service and the Fish and Wildlife Service are making their management decisions, and as was pointed out earlier, a good number of the properties and lands we are talking about are contiguous to areas that have one form of protection or another, there needs to be a higher level of cooperation and coordination between the executive branch agencies of the Federal Government and communities who are really trying to plan for the same ends and there are examples where those agencies, Federal and local, end up at cross purposes with one another.

Senator CHAFEE. We will certainly do all we can to eliminate that friction because we are all striving for the common goal, as you mentioned.

Then the next point you made about where it should be based on the prospective protective value rather than where the footprint of man necessarily is.

There we just had to make a decision where there is a certain amount of development maybe we should apply this act there, but the problems involve—we are going to have enough problems anyway, as you heard the prior witnesses talk about phase development, and so forth. So to move into an area where, indeed, it is recognized as developed, it would seem to me would raise so many problems in getting this act passed. Now if a hurricane comes and wipes everything off Dauphine Island, or wherever it might be, again, then maybe that should be incorporated.

I think we ought to look at that act to see how we can proceed and then protect the island, as it were, retroactively after a hurricane.

I think to do it now even though there isn't complete development, but there is enough development, would raise and awful lot of problems in getting this act passed.

Mr. JANKEL. I think APA understands the reasons and your position, as you have just stated it. I think the association really feels that the independent variable here is the common ecological orientation of these areas. I wanted to give you our position on it.

Senator CHAFEE. It is a very good point.

Senator Gorton?

Senator GORTON. I would associate myself on those last remarks of yours. It would be nice to be able to go further, but I think you exercise sound judgment in what we can actually accomplish, Mr. Chairman.

Senator CHAFEE. If you stick around for the later witnesses, you might see what we are talking about, perhaps.

Thank you very much, Mr. Jankel.

Mr. JANKEL. Thank you, Senator.

Senator CHAFEE. Glad you are here.

Mr. Gerald Bordelon, chairman of the Louisiana Coastal Commission, and Mr. Michael Hightower from the General Land Office in Texas.

Gentlemen, we welcome you here and would ask that you observe the time limit.

Mr. Bordelon, if you would go first. You have a fine statement here which we will put in the record and if you could summarize it, we would appreciate it.

STATEMENT OF GERALD BORDELON, CHAIRMAN, LOUISIANA COASTAL COMMISSION

Mr. BORDELON. Good morning, Mr. Chairman and members of the subcommittee. I am here representing the State of Louisiana.

I would like to present our State's position on S. 1018, which you and a number of your colleagues have produced.

We appreciate your recognition of the national need to protect and conserve the coastal fish and wildlife resources and to prevent the development of costal barriers on any action or program that would encourage such development. This type of legislation is definitely needed along the Atlantic coast and much of the gulf coast of the United States. However, in its current form, the bill presents some problems for Louisiana.

Careful study of the bill identified three major areas of concern. These involve some of the basic premises, conflicts with existing management framework and the duplication of effort and, third, some administrative aspects of the bill.

Our testimony will focus on these areas.

As you had requested, Senator, we will not go through our complete report, but will let our paper reflect it.

I have brought with me Dr. Sherman Gagliano, who will present a slide presentation to you which vividly will show the problems Louisiana is facing and will show the effect of why we need the help and understanding of the special conditions that Louisiana is facing and how this bill would affect us.

I would like to give our summary and recommendations and they are as follows: We feel that No. 1, the bill should not restrict any actions and programs designed to protect, stabilize, and/or enhance the natural resources on coastal barriers and related areas.

No. 2, resources on coastal barriers and related areas——

Senator CHAFEE. Could I just ask one question? Did you use the term stabilize or protect the natural resources? Is there agreement—in other words, man does things, builds jetties, groins, whatever it might be, with an objective to protecting something.

Then there always seems to be a reverse effect in some other manner that does not achieve the goal.

Are you convinced that there are such stabilization measures?

Mr. BORDELON. We agree that there have been some problems in engineering structures, nourishment, and revegetation but they are not infected.

Indeed, there have been poor designs and misapplications of these techniques and many examples of the structure failures will be cited. However, it is our belief there are many legitimate reasons for structure approaches to the shoreline management.

We feel that we have come up with a plan within Louisiana for implementing some of these stabilization means that would work and under a special task force by the Governor, we have come up with some pilot projects which we feel will work and help stabilize the coast of Louisiana. Some of these we wish to demonstrate to you today in a slide presentation.

Senator CHAFEE. OK.

Mr. BORDELON. The third part of our summary is that our coastal barriers shall not be delineated as underdeveloped and should be included under the bill unless development is feasible.

Fourth, we feel energy-related development should be considered as a type of development in identifying undeveloped coastal barriers.

Fifth, maps showing the areas to be included under the act should be affixed as an integral part of the bill.

Sixth, the bill should be consistent with Louisiana's federally approved coastal management program.

Seventh, the State of Louisiana would like to be consulted along with the Secretary regarding any Federal expenditures or financial assistance for the projects qualifying as exceptions to the proposed bill.

Eighth, and finally, we feel consideration should be given to the fulfilling of the reporting requirements through the existing State programs.

In summary, sir, Louisiana is supportive of your efforts to protect, preserve, and enhance the valuable coastal natural resources. We endorse these features that are consistent with and do not duplicate the efforts of Louisiana's federally approved coastal management program.

We believe that full consideration of all criteria related to classification of coastal barriers and their development and use will clearly demonstrate that little, if any, of Louisiana's coastal area could be included under the jurisdiction of this bill.

In order to vividly see the work that we have done and what lies ahead for us in our unique coastline of Louisiana, we have prepared a short yet concise slide presentation which emphasizes the problems we face along our barrier islands along the coastline of Louisiana.

On behalf of the Governor of the State, I thank you for your time.

Mr. Gagliano?

Senator CHAFEE. Doctor, how long is the show?

Mr. GAGLIANO. Mr. Chairman, in view of your time schedule, I am going to be very selective in the slides that I use. It is a flexible presentation and I came prepared to adjust my presentation to your schedule. So I will try and highlight those points which I think are significant.

Senator CHAFEE. There are few things more dangerous than turning a man loose with his slides, but you proceed.

Mr. BORDELON. We appreciate that, thank you.

[Slide presentation.]

Mr. GAGLIANO. My first point, and I think a very significant one that in considering——

Senator CHAFEE. Doctor, hold it 1 minute.

We will have to have that light out back there. Can everybody see?

Go ahead, Doctor.

Mr. GAGLIANO. Considering barrier islands and related features, we have to look at them in context of the natural system in which they occur and the natural system dominated by the Mississippi River delta in the State of Louisiana is significantly different than some of the neighboring systems along the gulf coast as well as those along the Atlantic coast.

The significance lies primarily in the very dynamic character of our coast. We are in an area receiving sediment from the Mississippi River. The entire coastal zone is a result of deposition of that sediment at the outlet of the river. The position of the river is constantly shifting through time. In opposition to those constructive forces is the constant attack of the gulf, working away to erode the shorelines back.

To really understand this, you would have to look at it in a timeframe. The entire coastal zone which accommodates most of the population of Louisiana is a result of delta building processes that have occurred during about the last 7,000 years. It is during this period that sea level approach has reached its present stance. You can see on this map, for example, 3,000 years ago the site of the city of New Orleans was well out in the Gulf of New Mexico and, in fact, was on a barrier island that is now buried in the substrait. As the river constantly shifts its course far upstream from the gulf, it initiates new episodes of delta building that extend lobes of new land out into the gulf. These consist of natural levy ridges and fringing wetlands. It is during the deterioration phases of these delta cycles, that is when the river supply of water and sediment is cut off from an old course that barrier islands develop along the Louisiana coast.

These are previous episodes. They unfold in relatively short periods of time and the barrier islands gradually disappear and merge back as shoals in the gulf.

During a long period of time, the entire coastal plain of Louisiana literally millions of acres of wetlands and ridge lands were constructed by this process, and it culminated at about the time that man entered the scene. As you will see in a moment, since that time the coast has been deteriorating and deteriorating very rapidly. When we look at the nature of the coast, we find in southwestern Louisiana that we really don't have true barriers. In fact, we have thin ribbons of sand thrown back on a marshy shoreline generally with mudflats developing periodically along the front. We would submit that this type of landscape is not only unsuitable for development, and we recognize that, but it is questionable that development could occur under any circumstance.

In the eastern part of the delta plain, we do have true barrier islands, but these are very, very ephemeral in nature. We have one barrier island in Louisiana where development could occur and it has occurred long ago.

We have all of the classic problems that you associate with these features on the Atlantic coast.

But most of the barriers, even in the delta plain shift positions so rapidly that they simply do not provide stable enough platforms for any type of development.

This barrier, for example, has completely shifted its position within the last 100 years so that the body of the island has moved to a completely new position.

We have another category of development, if you will, that is not related to recreational uses or beach front uses and that is activities related to the oil and gas industry, both on shore and offshore,

Many of these occurred early in the days of the industry and are largely prohibited by our federally approved coastal zone management program and are no longer occurring. But we would submit that they should be considered in classifying developed and undeveloped areas.

Now we recognize in Louisiana the value of the barrier island system in protecting the very resources that this bill is designed to protect. And I think that our coastal zone management program give strong evidence that we have been working in the same direction, that we have documented these resources, we have identified problems and we have launched a multipronged approach to protecting our fishery, for example, which accounts for something like 25 percent of the Nation's annual fish harvest.

We also recognize the value of the cultural resources and the human resources in this coastal zone. Again, most of our population lives in coastal wetlands. We live in a situation very similar to the one found in the Netherlands. Coastal protective measures are a part of our way of life. We are not dedicated to dredging, draining and maintaining the landscape for urban development, but, as a matter of fact, these wetlands are a platform upon which our whole society and economy exists and there are certain protective measures that we feel we must take in order to preserve this platform.

We have some big problems and the problems are related to the kinds of things that are being addressed in this bill. Our coastal——

Senator CHAFEE. What is that, a fort of some kind?

Mr. GAGLIANO. Yes, it was a Civil War defense built in 1857 well inland from the shoreline of this lake and since that time, as you can see, it has been left stranded and it is sinking as a result of subsidings.

This is a marshland scape that in the 1890's constituted an unbroken vista of marsh grasses. These are the great wetlands of Louisiana. This marsh is breaking up and will soon revert to open water along with hundreds of thousands of acres just like it.

This is a swamp that is suffering the ravages of salt water intrusion as part of this process of coastal breakup. Hand in hand with erosion and wetlands deterioration is a major problem related to sinking of the land. This is a natural phenomena in the coastal zone of Louisiana where we have normal subsidence rates of about a foot per century. But, as you know, these have been accelerated as a result of worldwide increases in sea level in recent decade and they have also been greatly accelerated locally by withdrawal of natural gas and oil resources. So not only are the wetlands sinking and deteriorating, but the ridgeland that people work on, live on and play on are literally sinking below the level of the sea.

This illustrates how this comes home. There is a capsule of the problem of maintaining communities and cities in our coastal zone in the face of these changing natural processes.

This all relates back to coastal barrier protection. We have done extensive measurements in recent years of literally thousands of maps and aerial photographs to try and learn more about the land lost and coastal retreat that is occurring in our zone. And this map summarizes the findings of some of those studies.

All of the colored areas on the map are areas of low to very severe erosion.

In summary, all of our coast is eroding. It is eroding so rapidly that the life expectancy of some of our parishes is less than 50 years. They will literally wash away into the sea if we do not take some protective action.

This graph, and we won't go into the numbers, summarizes the magnitude of that loss. In the Deltaic plan, we can now document an annual loss of near 40 square miles of lands per year. And extending this to the entire coastal zone, we can document a loss of about 50 square miles.

When we project this data, it presents a frightening picture. This is where we think our shoreline will be in 50 years unless the State takes some measures to deal with these problems. And clearly the gulf shore and the barrier islands is our first line of defense. If we lose that, we lose everything, including the vast resources of the coastal wetlands and estuaries.

Reasons? Flood control which is necessarily for our way of life and which started when the French founded Louisiana in the 1700's. Navigation channels, which introduce salt water intrusion, a maze of canals related to onshore and offshore drilling and pipelining activities. This, for example, is a segment of our gulf shore. The straight lines are pipelines and access canals for drilling rig locations that have developed over a period of years.

I said that we have a two-pronged approach, multipronged approach to dealing with these problems. One is a strong administrative approach. We have, we think, a very viable and good coastal zone management program which we are very proud of and which came about as a result of some very long and painful efforts.

In addition to strictly administrative measures, like strong permitting, we have initiated now a phase of structural activities that include marsh management and fresh water diversion for the purpose of building new land area and offsetting the detrimental effect of salt water intrusion.

This project along the lower reaches of the river, for example, diverts Mississippi River water into adjacent wetlands and was built by local government through the cooperation of the State and participation in the coastal energy impact funding program.

Another series of projects is evolving as a result of efforts by Governor Treen and the legislature. This past November, we passed a landmark act which commits a large amount of money, some $35 million of State funds for the purpose of dealing with these problems and we are now in the process of planning and hopefully implementing some measures which will reduce these losses. And specifically these include some stabilization of barrier islands, such as the barriers that lie along this very valuable estuary. This is one project, for example, where the islands are so badly degraded that without human intervention and I mean without applying our full arsenal of approaches for beach management and stabilization, this will soon open up and allow greater tidal exchange and result in the loss of thousands of acres of valuable estuarian habitat and wetlands. The kinds of measures that we will apply here include conservation of the little sand that is available, supplementing this sand with beach nourishment, if necessary, using vegetation techniques to stabilize this. And, again, applying an arsenal of techniques that will allow us to hold these vital links and to manage them as a hedge against invasion by the gulf and as a critical way of protecting the resources of the coastal zone.

I close by thanking you for allowing me to exceed your time limits, but I think what we have to say is definitely related to the bill and we feel that the future of our State depends on our ability to deal with the management of these gulf shore and coastal features.

Thank you, sir.

Senator CHAFEE. Thank you very much, Doctor.

I have had the experience of visiting Louisiana to Atchafalaya Basin there, and I have seen some of your problems. Of course, as you know, in our act we do have two exemptions; one dealing with projects for fish and wildlife protection and enhancement and then for energy development. So that might cover some of the problems that you touched on.

We will certainly bear in mind your testimony.

Mr. Bordelon?

Mr. BORDELON. Mr. Chairman, again we would like to thank you on behalf of the Governor of our State for your time.

We would like to offer to any of the members of the staff and committee, if we can be of further assistance, we will come up again, and explain the backup information we have as we did cut our presentation to accommodate your time needs.

We would be happy to do this at any time that is convenient with you and to assist you in any way that we could.

Senator CHAFEE. Thank you very much. We appreciate that.

Senator Mitchell?

Senator MITCHELL. During the latter part of the slide presentation, you commented on the State's efforts at beach stabilization and you committed a substantial amount of money to where there has been previous substantial degradation. Have you had enough experience to evaluate the success of your efforts in this regard relative to cost and effectiveness?

Mr. GAGLIANO. Yes, we have. We have not come about the decision that we need to resort to these approaches lightly. There has been a real task force effort among the academic community as well as State officials and people in government who have experience in coastal engineering. We have brought in a broad range of expertise and we have, as I said earlier, tried to come up with an arsenal of approaches. We favor those approaches which mimic nature and which work along the conjunction with natural processes.

Senator MITCHELL. All of that describes the procedure that led you to do what you are now doing. My question goes more to the effect of what you are doing. Has enough time elapsed, have you had enough experience to be able to evaluate the success or failure of what you are trying to do in terms of beach stabilization relative to cost?

Mr. GAGLIANO. We have looked at the few attempts at beach stabilization that have been done in Louisiana as well as those in other areas and weighed the cost and the realization that these are ongoing commitments against the magnitude of the loss that will occur without these projects.

Senator MITCHELL. But have you reached any conclusion as to whether or not you are successful?

Mr. **Gagliano**. We have reached the conclusion that the cost necessary for maintaining our coast against these invasions of the sea are necessary for our survival.

Senator **Mitchell**. From that may I infer you feel you have stabilized some beaches, you have preserved some——

Mr. **Gagliano**. We have a few examples where the measures taken are working; yes.

Senator **Mitchell**. Do you have any examples where the measures taken are not working?

Mr. **Gagliano**. Yes, we have those, too.

Mr. **Bordelon**. Yes, we have taken those examples where it is not working and tried to correct what problems exist there. We have found in some of them that it is working with the corrections we have made.

Senator **Mitchell**. Were any Federal funds involved in the procedures you have just been describing?

Mr. **Gagliano**. We have only had three instances, to my knowledge, of Federal participation in coastal erosion projects. And those have been relatively small projects in comparison to projects in many other areas.

Senator **Mitchell**. Thank you very much.

Senator **Chafee**. Is the thrust of your testimony, recognizing that this bill does not prohibit the States from doing anything they want as far as spending money, your concern is that by prohibiting Federal expenditures merely for the stabilization of a barrier beach, you might be cutting off some potential funds that would assist you in your efforts, is that the thrust of what you are saying?

Mr. **Bordelon**. Yes, sir, that is, if you have to capsulate it. We wanted to make you aware of how the problem is unique in Louisiana and now it is not unilaterally applied.

Senator **Chafee**. Your belief is that if these islands were preserved, they would remain preserved for the purposes we are talking of here rather than becoming some great development which would destroy the effort we are achieving?

For instance, you have zoning applying to those islands.

Mr. **Bordelon**. We have very strict restrictions set forth by the Coastal Commission itself. Because of the mere location of the islands themselves, having no accessibility by roads and very shallow waterways, with the exception of Grand Island and some of the closer already developed islands, the barrier islands cannot be developed.

They are just not recreation islands.

Senator **Chafee**. Senator Gorton?

Senator **Gorton**. Let me follow up those questions by Senator Chafee. The third of your recommendations is a coastal barrier should not be delineated as underdeveloped and included in this bill unless development is feasible. It would seem to me perhaps the opposite would be true. What harm is there in including in the bill a delineation as undeveloped if it is, in fact, undeveloped now and isn't going to be in the future?

Mr. **Gagliano**. I will take a shot at that.

Louisiana has made a commitment to coastal zone management, and we feel we have addressed these problems and are addressing them through our coastal zone management program. I think a review of our guidelines and the changes *in permitting procedures* will indicate that.

We have some concern of another layer of jurisdiction that will enter into that management.

We certainly agree, again, with the objectives of the bill, and if we can receive some assurance that this will not make our program so cumbersome that we cannot fulfill the goals and objectives of our program, we would certainly be in full agreement.

Senator GORTON. In other words, it is not because there is actually some legal impact by this kind of designation, but simply because you feel you are already quite adequately managing that kind of situation and no Federal statute is necessary; is that correct?

Mr. GAGLIANO. I think that is essentially correct.

Senator CHAFEE. We will talk some more with you about this. But, of course, this bill doesn't manage anything. We are not managing. There is no layer of government above you. All we are saying is that in these delineated places, we won't provide roads and sewage plants, so forth, but it is not a zoning. It is not a layer of management at all. I am not sure your fears are completely justified except for the fact you would not be able to receive Federal moneys for beach stabilization.

Mr. BORDELON. That is the thrust of it, sir.

Senator CHAFEE. Is that your principal concern?

Mr. BORDELON. That is. We might want to have the opportunity of further funds that would be available later on being completely cut off because of the uniqueness of the problem we have in Louisiana and the vitalness of our barrier islands to protect what is behind them, especially as the last slide showed very vividly, the city of New Orleans in 50 years and the projected rate that we have been able to document it and show that it has tracked backward, we will be surrounded by water, by the Gulf of Mexico. That is why we are very concerned about it.

Senator MITCHELL. Is a part of your interest here in stabilizing the boundary of the State?

Mr. BORDELON. Of course, that is always a great concern.

Senator MITCHELL. Is it a particular concern in Louisiana?

Mr. BORDELON. Well, of course, we want to maintain our State boundaries, but we are concerned about the livelihood and safety of the people of the city of New Orleans and Homer who are threatened by it right now.

Senator MITCHELL. Would there be an adverse economic effect upon the State if barrier islands are not preserved at their present outer location?

Mr. BORDELON. Yes, there would.

Senator MITCHELL. What would that be?

Mr. BORDELON. The economic necessary movement of the people, the amount of revenues that would be brought into the State because of the mineral leases, et cetera.

Senator MITCHELL. Would you explain that last statement?

Mr. BORDELON. We have a paper that has been presented which details it to the committee, but basically what it is is that we could lose revenues from the Outer Continental Shelf waters.

Senator MITCHELL. In other words, the further out the boundary, the larger the area from which the State can receive revenues from oil or other activities in that area; is that correct?

Mr. BORDELON. That is correct.

Senator MITCHELL. So you have a real economic incentive to preserve the barrier islands at their outermost location, do you not?

Mr. BORDELON. That is correct.

Senator MITCHELL. It really is a powerful incentive.

Mr. BORDELON. It is really dynamic to the State in all means, not only economically.

Senator MITCHELL. Was that argument mentioned in the legislature when the appropriation of funds for this purpose was requested?

Mr. BORDELON. Yes, we are all involved in government. You can be assured that it was mentioned.

Senator CHAFEE. Touched on, perhaps. As you indicated in your slide show, one of your major problems comes from the channelization, does it not, and the effect that has had on the wetlands and now, as I understand it, you are taking efforts to get freshwater back into these wetlands.

Mr. GAGLIANO. Yes, that is correct. The problem has many facets, but it is a problem of trying to maintain existing wetlands by recreating overbank flow that is necessary for their survival and at the same time preventing saltwater intrusion which damages the vegetation that holds the land together.

Mr. BORDELON. Because of the amount of pipelines that crossed over these barrier islands in the past, the rapid deterioration has increased considerably. This is one reason why we wanted to show you on the films so you could see it from a pictorial view as to how the barrier islands have been scarred very badly, and it is unique to any of the other barrier islands along both of our east and west coasts.

Senator CHAFEE. There is no question what man has raised cain down there and now we are trying to take the corrective actions, and I commend what you are all doing, Governor Treen and others, because it is a very significant effort dealing with wetlands that you are making. We thank you.

Mr. Michael Hightower.

STATEMENT OF MICHAEL HIGHTOWER, DIRECTOR, LAND RESOURCES PROGRAM, TEXAS GENERAL LAND OFFICE

Mr. HIGHTOWER. Thank you, Mr. Chairman, members of the committee, my name is Mike Hightower, director of the land resources program for the Texas General Land Office. I am here today on behalf of the Texas Land Commissioner, Bob Armstrong.

Before I get into the presentation—in the interest of time, I will summarize and exclude parts of the testimony—I would like to point out this testimony is presented pursuant to the maps which were mailed to Governor Clements in a letter dated July 7, 1981, and signed by F. Eugene Hester, Acting Deputy Director of the Department of Interior.

The reason for this is these maps currently presented on the Barrier Resources Act exclude Galveston Island, Mustang Island and the lower portion of South Padre. His testimony goes as follows:

I am sorry that I could not be here today to personally present this testimony relevant to the proposed——

Senator CHAFEE. You will have to summarize now. We have one-half hour and we still have three witnesses.

Mr. HIGHTOWER. I am sorry I could not be here today to personally present this testimony. Nevertheless, I request that my statement be made part of the official hearing record.

Senator CHAFEE. It certainly will be.

Mr. HIGHTOWER. I am presenting this testimony in support of the proposed legislation known as the Coastal Barrier Resources Act. I have been in my capacity as land commissioner directly and indirectly involved with numerous coastal issues and legislation relevant to the management and thus development of the Texas coastal area. I would like from the onset to emphasize that I am not against development in our coastal area. As a manager of State lands, I do not prohibit development except in some critical areas. More realistically I manage the development in accordance with State laws, Federal laws, and in harmony with the environment.

The proposed legislation, while not prohibiting development on barrier islands, discourages rapid expansion and ill-planned structures by prohibiting Federal subsidies which encourage such. Before I discuss these issues more in detail, I believe that a brief synopsis of the Texas coast is in order.

I will skip several paragraphs and go to the following.

The barrier island system in Texas is composed of five islands—all fronting on the Gulf of Mexico. These are from upper to lower coast as follows: Galveston Island, Matagorda Island, San Jose Island, Mustang Island, and South Padre Island. There are also two large peninsulas, Bolivar Peninsula and Matagorda Peninsula, which are basically analagous to barrier islands in their functions.

Rapid growth in the Texas coastal area has been placing increasing pressures on the upland-coastal areas in addition to the island systems. Many of these activities have national as well as statewide importance. Interests such as agriculture, fishing, manufacturing, petroleum products production, ports and shipping, recreation and tourism, and attendant housing developments all compete for the use of a limited yet highly important natural resource base.

Since 1871 to date, a total of 71 hurricanes and tropical storms have struck the Texas coast. Hurricanes alone have caused over $3 billion in damage since 1900 in 1978 dollars. The last four major Texas hurricanes have directly affected these populated barrier islands. In 1961, Carla made landfall just south of Galveston Island at Port O'Connor; Beulah in 1967 struck Brownsville opposite South Padre Island; in 1970 Celia directly hit Port Aransas on Mustang Island; and in 1980 Allen hit just north of Brownsville on South Padre Island. Total damage figures and cost of rescue efforts for these hurricanes, with the exception of Allen, totaled in excess of $2 billion at 1978 dollar values.

In the decade since the last major hurricane struck the Texas coast, the population of the State's barrier islands has greatly increased. This increase may be particularly attributed to the availability of Federal flood insurance and other Federal grants and subsidies.

Current trends indicate that the destruction of property on barrier islands due to hurricanes has drastically increased while the loss of lives has decreased. However, as the islands and adjacent mainland continue to develop, it appears likely, according to disaster experts, that loss of property and lives both will increase. Ultimately, the size and intensity of a storm is probably less important than the population density where the hurricane makes landfall. Thus, hurricanes in Texas which caused only slight damage during the 1960's and early 1970's could very well produce major disasters in the coming decades if poorly managed and thus uncontrolled development continues to occur on our barrier islands. Both money and human lives will be lost.

I would like to give an example of the Galveston seawall. The 10-mile-long Galveston seawall was built in three stages from 1902 to 1963 at a cost of $15 million. If the seawall was extended only 5 miles on the western end of the island, the cost of this construction at today's prices would be in excess of $50 million.

In summary, what all of these points are leading to is is that as long as there are Federal subsidies to encourage development on barrier islands, development will continue without regard for resultant adverse impacts in conjunction with the tremendous monetary losses. A significant amount of these losses are paid for not by the residents of the islands but by all taxpayers. The proposed legislation cited as the Coastal Barrier Resources Act, appear to be a vehicle for providing the much needed management and thus control of the rapid development of our barrier islands. Further, these islands are very dynamic and delicate, yet they provide a most valuable and essential function in the protection to our coastal mainland communities and economy. The State, region, and Nation all stand to benefit by added protection of the barrier island systems.

In conclusion, I again want to emphasize that I am not against development of our coastal area; in fact, I am in support of the coastal region of Texas which is one of the most economically productive areas in the Nation, especially for petrochemical production, oil and gas refineries, commercial fishing, agriculture, tourism, and the wide array of nature-related activities.

Most if not all of these interests had the knowledge and foresight not to locate on the barrier islands. I am, though, opposed to the continued encouragement of developing the islands through Federal subsidies at the expense of all taxpayers for the benefit of the few. For all interests to benefit, these islands must be better managed and protected.

Thank you for allowing me to make this presentation to you today. Sincerely, Bob Armstrong, Land Commissioner.

Senator CHAFEE. Mr. Hightower, I would appreciate it if you convey to Mr. Armstrong our deep thanks for a very fine statement that he made and we are appreciative of the efforts that went into it.

Senator Mitchell.

Senator MITCHELL. I have no questions, Mr. Chairman.

Senator CHAFEE. Thank you very much. If we have further problems we will be in touch with you. I appreciate you coming.

Ms. Sharron Stewart, member of the National Advisory Committee on Oceans and Atmosphere and Mr. Arthur Rocque, Coastal States Organization, Hartford, Conn.

I apologize that I have to leave.

I will read over your statements. I appreciate you coming. Senator Mitchell will take over. I want to express to you, Senator, my appreciation for your staying, and I regret that I will not be here to hear your testimony, but I have both your statements and will read them plus the record. So, thank you.

Ms. Stewart?

Ms. STEWART. Thank you

STATEMENT OF SHARRON STEWART, NATIONAL ADVISORY COMMITTEE ON OCEANS AND ATMOSPHERE, WASHINGTON, D.C.

Senator MITCHELL [presiding]. Ms. Stewart?

Ms. STEWART. I will briefly summarize for you.

NACOA is a non-Federal 18-member body. Our members are required to have expertise in marine, atmospheric, and coastal zone matters and are drawn from industrial, State, and local groups with scientific and environmental policy concerns. We are appointed by the President and are mandated to advise the President and Congress on these matters.

First, let me say that NACOA supports S. 1018, your proposed Coastal Barrier Resources Act. We believe that it is a balanced and workable approach to this important coastal issue.

NACOA believes this bill will have two highly desirable effects. It will reduce the cycle of federally subsidized construction, then disaster, then federally subsidized reconstruction in these vulnerable areas.

At the same time, your bill will discourage further development of pristine areas by eliminating the incentive provided by federally funded infrastructure. We support all of the limitations and exceptions to Federal spending in undeveloped coastal barrier areas listed in S. 1018.

NACOA does have recommendations, however, that we believe would strengthen your bill. We recommend that the legislation be national in scope, including the Great Lakes. Although there are relatively few fragile, unconsolidated coastal barriers outside of the U.S. east coast and gulf coast, a national scope to the legislation would be more reasonable and certainly more equitable.

Second, we are concerned about the amendments to the Federal Flood Insurance Act contained in the Omnibus Budget Reconciliation Act of 1981. We applaud the language that prohibits new Federal flood insurance policies in undeveloped coastal barrier areas, but we are concerned that these provisions might be changed in the fiscal year 1983 appropriations process or in the fiscal year 1983 reauthorization of the Federal flood insurance program.

We, therefore, recommend that you retain language regarding flood insurance prohibitions in S. 1018.

We believe also that some confusion might be avoided in implementing a Coastal Barrier Resources Act if all of its limitations on Federal spending were made effective on the same date as flood insurance prohibitions under the Omnibus Budget Reconciliation Act, that is October 1983.

Concerning the mapping of undeveloped barrier island areas, we agree that the Department of the Interior has the expertise to produce these maps. However, NACOA believes that both the process of defining and mapping undeveloped areas and interactions of the Interior Department with the States must be further clarified.

An exacting definition of S. 1018's term "undeveloped" should be produced and published for public comment much as the Secretary of the Interior is now doing for implementation of the amended Federal Flood Insurance Act.

A developer who has a master plan approved by local authorities, acreage purchased, and building permits already obtained has made a significant investment and some progress toward development.

Whether or not such progress constitutes development of an area for the purposes of this bill should be further clarified in your legislation as well. It would, of course, be desirable if the same definitions and the same set of maps could be used for implementation of both the Coastal Barrier Resources Act and the amended Federal Flood Insurance Act.

Let me also clarify the type of interaction that we recommend between the Secretary of the Interior and the States.

First, we are not saying that the States should draw the maps. These maps will define where the Federal Government will not spend Federal money and that should be a Federal decision. States with active coastal programs have mapped their coastal resource areas, however, and we can imagine instances where the Department of the Interior and a State might disagree on whether an area is indeed a coastal barrier and which of them is undeveloped.

There may be disputes, even using the same definitions, because the matter is complex and, to some extent, subjective.

States might want to dispute either developed or undeveloped designations. For example, a developed area under S. 1018 can still receive Federal funds and this might create pressure for development in an area where the States hope to stop it.

While the States have ultimate control over development of their own coastal areas, it has at times in the past been difficult for them to apply these controls effectively in the face of the availability of Federal funds for building infrastructure in pristine areas.

For these reasons, NACOA believes that the Interior Department should be required to respond to State comments on the maps.

In States where a federally approved coastal zone management program is disputing Interior's designations, we feel the Secretary of Commerce, who oversees the CZM program, should arbitrate.

Thank you, and I will be happy to answer any questions you may have.

Senator MITCHELL. Thank you, Ms. Stewart.

Mr. Rocque?

STATEMENT OF ARTHUR J. ROCQUE, JR., DIRECTOR OF PLANNING, CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION

Mr. Rocque. Thank you, Senator Mitchell.

As a property owner and former resident of the State of Maine, I am glad to be here today.

Senator Mitchell. They say anybody who once lived in Maine and leaves is described as a maniac.

Mr. Rocque. That is correct, sir, I agree. Although I have to point out the barrier islands in Maine, such as they are, are built of granite rather than sand. They are not eroding.

Rather than read this testimony which has been submitted for the record from the Coastal States Organization, I will be less eloquent and sum it up.

I have some good news and bad news from the Coastal States Organization. The good news is we support this bill. We have supported this bill by resolution of the organization and we continue to do so. We feel it is high time the bill be passed.

Further good news is that the States that are represented in the coastal States organizations, particularly by their States CZM's programs, and program managers are the first line of defense for protecting barrier resources, coastal barriers.

It is often a tough job. It is a very tough job, obviously, when the Army Corps of Engineers and the Federal Emergency Management Agency and other Federal organizations provide the incentives and the superstructure and infrastructure to allow that development to occur where CZM programs, as I think was demonstrated by earlier testimony, are attempting to protect these resources.

Many of the good examples in terms of protection you heard here today came from States with approved CZM programs. Many of the bad examples come from States that do not have approved CZM programs.

The bad news is the State CZM programs are badly affected by budget cuts. It is going to be extraordinarily difficult for the States.

According to our surveys, 80 percent of the States' CZM programs will go out of existence. They are going to be the folks who are going to be implementing and guiding the kind of legislation we see here in this piece of legislation.

Senator Mitchell. Eighty percent will go out of business based on what has happened or what may happen in this coming year?

Mr. Rocque. Well, this is a very difficult thing to say. What was scheduled to happen and rescued by the Senate and House in terms of redistribution of funds and what I suspect will happen Monday in terms of a redistribution and a further recommendation for no further funding for coastal management programs from the administration.

Senator Mitchell. I still don't understand. If nothing happens now, no further proposed reductions, no recessions, will you be able to continue?

Mr. Rocque. We will be able to continue for at least 2 years. Quite candidly, Senator, we have not really assessed what the situation will be then. It is very difficult to forecast. A lot of these programs are embryonic. They are basically noninstitutionalized in the individual States. I came back from 2 days in South Carolina. The national estimate is we lose 6,000 acres a year to developed coastal barriers.

I personally reviewed over 6,000 acres in South Carolina imminently threatened with development of coastal barriers. I would say the South Carolina Coastal Council is well entrenched in terms of recognition in the State but in terms of the work they have to do, they have just begun.

Their example is very similar to the vast majority of States that have CZM programs.

Senator MITCHELL. If additional reductions are not proposed, as you say—you expect that to occur next week—then what you are saying is 80 percent will be out of business.

Mr. ROCQUE. If the funding remains intact, I cannot predict. I really cannot predict beyond the 2 years.

I would say if there is not a source of Federal revenue to State CSM programs to maintain efforts, and further efforts of coastal barrier protection, we are headed in the wrong direction.

Senator MITCHELL. You mean there is no willingness in this area, federalism at least, for the States to pick up this responsibility?

Mr. ROCQUE. There is a substantial willingness, sir. I think there is a strong commitment on the part of the States in terms of their CZM programs. It is a volunteer program. Most of the States in this country have taken that effort and most support in whole or in part an effort that supports the permitting aspect of coastal management.

Senator MITCHELL. But you just said that if Federal funds are reduced, 80 percent will go out of business. What kind of a commitment is that?

Mr. ROCQUE. That is correct, sir. I think the problem is we have taken a very large step with coastal zone management. Approximately 80 percent of the funding has been Federal funding. As I say, these prograns are embryonic. I think you will see States dropping back to the level of protection that was afforded prior to coastal managenent. The reason for that is not a lack of willingness so much as a lack of opportunity.

There have been other areas where the budget has been cut. It is extraordinarily difficult, as Senator Chafee pointed out. For example, the Federal Government subsidizing resources on barrier islands, when we are making social service cuts. It is also very difficult to justify coastal management at a State level when we are talking about social needs being cut substantially.

I would point out also a contributing factor I am sure the staff is aware of and should be cognizant of when this legislation proceeds, the Army Corps of Engineers is very seriously discussing delegating their authority under section 404 of the Clean Water Act to the States without, of course, any money.

That is part of the New Federalism. The opportunity goes but the finances don't necessarily follow. That is the only current Federal permit program that can be used to protect barrier resources. It can also be abused to be sure. The problem is that all these things are going to be falling into the States and if the CZM programs fail, then I think these efforts will fail and we will see a very high degree of speculation on coastal barriers in terms of real estate development.

Thank you.

Senator MITCHELL. Just looking at your prepared statement, Mr. Rocque, you had some concerns, the first of which was that the definition of developed and undeveloped should be more clearly stated. That is the position of your organization and that, I think, parallels a concern raised by Ms. Stewart.

Could I ask both of you to submit in writing definitions that you would propose be included in the act?

Mr. ROCQUE. I think we can do that.

Ms. STEWART. We will be happy to do that.

[Ms. Stewart supplied the following response:]

**NATIONAL ADVISORY COMMITTEE
ON
OCEANS AND ATMOSPHERE**
3300 Whitehaven Street, N.W.
Washington, D.C. 20235

QUESTION from SENATOR MITCHELL
Hearing on Coastal Barrier Resources Act, S.1018
Environmental Pollution Subcommittee
February 3, 1982

SENATOR MITCHELL

What definitions of "developed" and "undeveloped" would you propose be included in the Act?

NACOA ANSWER

We will decline to offer specific language for a definition, but we would like to comment further on the matter.

As written, the bill contains a rather loose definition of "undeveloped coastal barriers." The exact boundaries delimiting "coastal barriers" are not included in the definition section, but instead are determined by a set of already established maps. In establishing the map system, a coastal barrier was treated as "undeveloped" if there were ..."few manmade structures on the barrier and these structures, and man's activities on the barrier, did not significantly impede geomorphic and ecological processes." We suggest that the terms "few" and "significantly" in that statement are both subjective and imprecise. In addition, there is no attempt to address phased developments that are in progress. The set of maps is to be taken as the definiton rather than having the maps be established from rigorous definitions. This approach seems likely to leave room for argument and litigation. If a system of maps is to be established within the bill, the bill should also contain rigorous definitions upon which these maps are based. As we stated in our testimony, it would, of course, be desirable if the same definitions and the same set of maps could be used both in your bill and in the amended Federal Flood Insurance Act.

NACOA believes that there should be some, though limited, "grandfathering" provisions clearly laid out to protect developers who have invested considerable funds and effort to a development project. We prefer, again, not to define the exact level of progress that would constitute "developed" as opposed to "undeveloped" land, but we believe that this definition should be included in the language of the bill.

Senator **Mitchell**. Put down in writing specifically what you think we should do.

Do you have anything further you want to say, Ms. Stewart?

Ms. **Stewart**. No, I don't think so. Not unless you have further questions.

Senator **Mitchell**. I have no further questions.

Thank you both for your testimony. It is very instructive and the committee will take that and the other testimony under consideration.

The hearing is adjourned.

[Whereupon, at 11.50 a.m., the hearing recessed, to reconvene at the call of the Chair.]

[Statements and other material submitted for the record follow:]

STATEMENT OF RIC DAVIDGE, CHAIRMAN OF THE COASTAL BARRIERS TASK FORCE, U.S. DEPARTMENT OF THE INTERIOR, BEFORE THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS, SUBCOMMITTEE ON ENVIRONMENTAL POLLUTION, FEBRUARY 3, 1982.

Mr. Chairman, it is a pleasure to be here today to report on our progress in implementing the Omnibus Budget Reconciliation Act of 1981, requiring the Secretary to designate undeveloped coastal barriers along the Atlantic and Gulf Coasts of the United States. As you know, this statute amends the National Flood Insurance Act to prohibit the issuance of new Federal flood insurance coverage beginning October 1, 1983, for new construction or substantial improvements of structures located on undeveloped coastal barriers designated by the Secretary of the Interior.

Last October, the Secretary testified before this Subcommittee that the Reconciliation Act and your legislation, S. 1018, chart a sensible course to conserve tax dollars and natural resources. He also outlined our plan of action in designating undeveloped coastal barriers under the Reconciliation Act. I am pleased to report that we are on schedule.

On January 15, 1982, the Department released draft definitions and draft maps, along with draft information summaries describing each mapped unit. Notice of this action was published in the Federal Register. In addition, this information was mailed to more than 500 reviewers, including concerned Members of Congress, State and local officials and private individuals and groups.

Mr. Chairman, I would like to briefly explain the tremendous amount of effort that went into this release. The Reconciliation Act's statutory definition contains a careful but brief statement of what constitutes an undeveloped coastal barrier.

Accordingly, an understanding of its background and evolution is also important. Our draft document, "Undeveloped Coastal Barriers: Definitions and Delineation Criteria," is intended to implement that statutory definition, taking into account the legislative history and, to the extent relevant, previous work of the Department. It also presents delineation criteria which translate the definitions into practical rules to be used in drawing the actual boundaries. With the application of these criteria we have delineated 159 undeveloped coastal barrier units in 16 States, covering about 680 miles of beach.

This work is the result of considerable study by the Department, consideration of public comment, and consultation with Congressional staff. For several years the Department has collected and analyzed information on coastal barriers in response to a variety of executive and legislative initiatives. Prior to the Reconciliation Act, the most recent effort was with regard to S. 1018 and H.R. 3252, as introduced last April. Both bills referred to a set of maps. In the summer of 1981, drafts of these maps were made available to affected Members of Congress, as well as the Governors and local governments of affected States. Their comments have been used extensively in our current study and mapping efforts under the Reconciliation Act.

After enactment of the Reconciliation Act, we discussed proper interpretation of that statute with the House and Senate committees having jurisdiction over coastal barrier issues. Additional comments were generated by our Federal Register notice of December 1, 1981, outlining our planned procedures for implementing the Act. Shortly thereafter, in early December, the Secretary requested review of an initial draft of our definitions and delineation criteria by Atlantic and Gulf State

Governors and Congressional delegations, as well as interested Federal agencies and Congressional committees. Many other suggestions were received from private organizations and individuals.

We are now seeking the widest possible distribution and review of the draft maps, data summaries, and delineation criteria released on January 15th. Ample opportunity for public comment on the draft definitions and draft maps will be provided through our mailing and the Federal Register notice of availability. However, based on a successful model in South Carolina, we believe that Members of Congress and Governors might want more public discussion. The Secretary has suggested that the 16 Governors, in conjunction with their Congressional delegations, hold public meetings to discuss these draft definitions and maps. Technical assistance from the Department will be provided if requested.

The public comment period on these draft documents will extend to March 15, 1982, although comments received within one week after that date will also be accepted. This should accommodate those who experienced a delay in receiving their maps due to a mail problem. With the close of the comment period, we will move quickly to further refine the definitions and delineations, if necessary, based upon the comments and additional factual information we receive on or before March 22, 1982. We will then develop the required proposed rulemaking documents and meet other executive branch requirements for the issuance of such a proposed rule in preparation for our report to Congress by the August 13, 1982, statutory deadline. Our current timetable calls for the Secretary's final designations to be made in the fall of 1982.

Mr. Chairman, we have three responsibilities under the Omnibus Budget Reconciliation Act, P.L. 97-35 --

- o to identify areas that are coastal barriers;
- o to determine which of those areas are undeveloped; and
- o to determine which of those areas are otherwise protected.

The legal concept of a coastal barrier is straightforward; Congress has provided clear direction. A coastal barrier must be a depositional geologic feature which consists of unconsolidated sedimentary material; it must be subject to wave, tidal, and wind energies; and, it must protect landward aquatic habitat from direct wave attack. Four examples are also provided by the statute -- bay barriers, tombolos, barrier spits, or barrier islands. As examples, however, we have not treated these categories as exhaustive.

Not all of the coastal barriers we have identified are islands; many are in close proximity to mainland areas. The key is that, in each case, the area considered a coastal barrier protects landward aquatic habitat from direct wave attack. This rigorous standard prevents the designation of mainland beaches that might otherwise meet the standards of the statute. We are confident that the standard provided by the Act is workable and that its application will serve to identify areas that can appropriately be considered coastal barriers.

The second part of our responsibility is to identify which coastal barriers are "undeveloped." P.L. 97-35 defines an undeveloped coastal barrier to exist:

> ...only if there are few manmade structures on the barrier or portion thereof and these structures and man's

> activities on the barrier do not significantly impede geomorphic and ecological processes...

Further elaboration of the concept of "undeveloped" has been of threshold concern to us. Initially, there was a question of whether permits, approved development plans, or other legal indicators of an intent to develop should be considered as constituting "structures" or "man's activities" within the meaning of the statute. Neither the specific language of P.L. 97-35, nor its legislative history, support reliance on any development that is not visible on the ground. The existence of a legal right to develop is simply not addressed in the Act. Accordingly, for purposes of these draft definitions and draft maps we have concluded that Congress, in enacting the Reconciliation Act, did not intend us to consider such documentary evidences of future development. In lieu, Congress provided a delay in the date for terminating the availability of Federal flood insurance until October 1, 1983, as a means of dealing with ongoing projects. A developer with the legal right to develop can do so before that date and still be eligible for Federal flood insurance coverage.

In the context of the statutory definition, the use of the term "structure" clearly refers to a building with walls and a roof. In general, we have used a density threshold of more than one structure per five acres of fastland to categorize a coastal barrier as developed. This standard is cited in the legislative history and has been used in previous Interior Department delineations. From experience we know that the number of structures and the associated levels of human activity at densities greater than this threshold tend to interfere with the natural processes which build and maintain coastal barriers.

In addition, however, the legislative history of this provision also contemplated that the actual existence of "infrastructure" -- a concept we have defined to mean access to each lot or building site plus the reasonable availability of some combination of utilities and services -- would serve in lieu of the actual existence of structures themselves.

As a basic rule, the application of the "structure" and "infrastructure" concepts have been applied to each discrete segment of a coastal barrier unit. In our draft definitions, discrete segments have been defined as areas that are set off by natural breaks or by intervening areas that are otherwise protected or clearly developed.

There is one exception to this concept, applicable to large single ownerships that are in the process of being developed under a phased development plan. We have not created a new discrete segment at the edge of a clearly developed area in those cases where: 1) initial construction has been completed on at least the first phase of such a large project involving 100 or more building sites being developed by one entity; and 2) phasing of development has been publicly documented from the outset of the project. Instead, the remaining portion of that single ownership has been considered an integral part of the development.

There are three reasons for this approach. First, it was the practice in a previous delineation of undeveloped coastal barriers. Second, it is not inconsistent with the statute and follows the intent of Congress to provide a transition period for development. Finally, because the edge of a developed area typically represents a break in ownership and a break in the linkage between developed and undeveloped areas, the use of the edge of clearly developed areas to determine discrete segments is a pragmatic and practicable approach. In the phased development situation this is not true; there is no break in ownership at the edge of an area that has been developed. Rather, there is a large remaining portion of that ownership that has been planned for development on a phased timetable.

The phased development concept is not based upon permits or legal rights that these projects may or may not have, but merely on the size of the project and the expectation from its outset, well prior to passage of the Reconciliation Act, that the entire project could be completed as planned. As a practical matter, this criterion applies to just three coastal barriers involving only about 2,000 acres, compared to the more than 700,000 acres encompassed by our draft maps.

Another factor concerning the concept of "undeveloped" should be emphasized. Under the statutory definition, a determination must also be made as to whether any structures and man's activities, taken together, significantly impede geomorphic and ecological processes. If so, the area cannot be defined as undeveloped.

As described in the definitions document, structures and human activities significantly interfere with these natural processes only if they impede the long-term perpetuation of the coastal barrier system. For example, stabilization of the surface of a coastal barrier can create significant impediments to these processes. However, this provision would not normally be applicable to activities that mimic, enhance, or restore natural systems. In view of the variety of structures and activities which may impede coastal barrier processes, a determination of their significance usually requires individual assessment and informed professional judgement.

Finally, the Act also provides that an otherwise undeveloped coastal barrier shall not be designated if the area is

> ...within the boundaries of an area established under Federal, State, or local law, or held by a qualified organization as defined in section 170(h)(3) of the Internal Revenue Code of 1954, primarily for wildlife refuge, sanctuary, recreational, or natural resource conservation purposes...

Under this definition, it is not enough that an otherwise undeveloped coastal barrier is in public ownership or is held by a not-for-profit conservation organization. It is necessary that the interest owned be adequate to protect the area and that the area is dedicated to one of these purposes. In addition, a nongovernmental owner must meet the standards provided by Congress in the Tax Treatment Extension Act of 1980 which amended section 170 of the tax code. It must not only be a publicly supported charity, it must also be an organization which has the commitment and resources to enforce the interests it owns and to protect the conservation purpose. Where the draft maps include an area that reviewers believe should have been determined to be otherwise protected, the Department needs detailed information to support any change. Whenever possible, I recommend that a legal opinion of counsel be provided regarding the interests that are owned, the purpose of ownership and the nature of the owner.

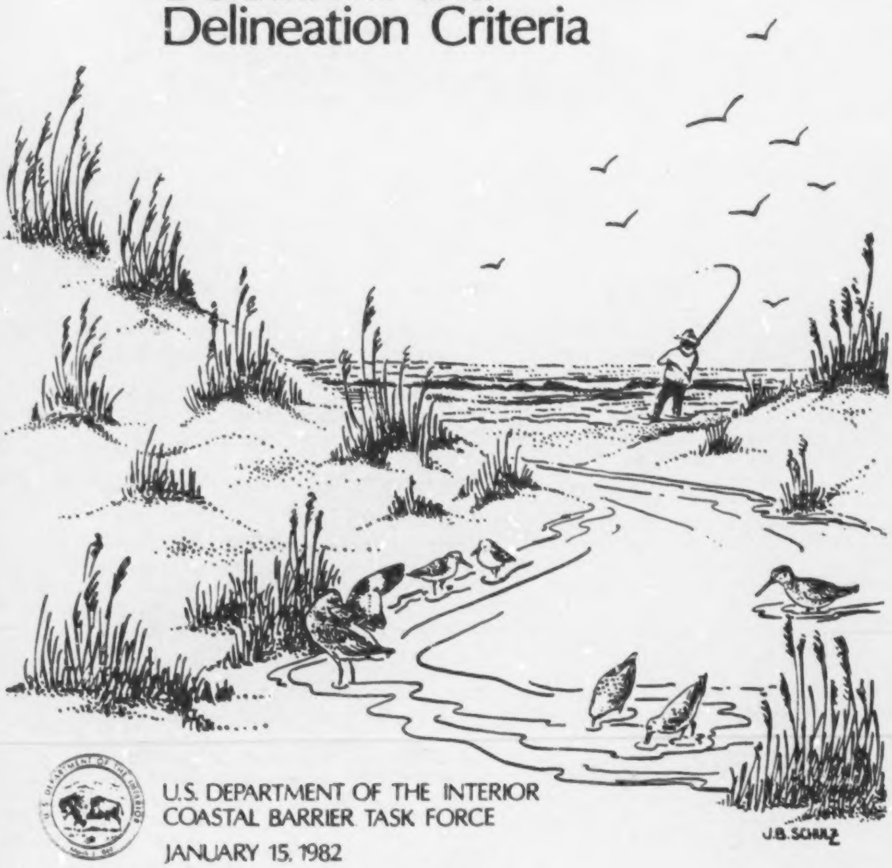
In closing, Mr. Chairman, I very much appreciate the opportunity to discuss our efforts in implementing P.L. 97-35. I believe we have made real progress. The substantial information base developed during previous Department studies on coastal barriers, combined with numerous opportunities for participation by the interested public and Members of Congress, give us considerable confidence in the validity of the definitions and criteria, as well as in the accuracy of our delineations.

At the hearing last October, Secretary Watt discussed with this Subcommittee the need to work together in identifying the undeveloped coastal barriers which would be affected by both the Reconciliation Act and S. 1018. We will continue to cooperate closely with you and other interested Members of Congress throughout this process.

This concludes my prepared statement. I would be pleased to answer any questions you or other Subcommittee members may have.

DRAFT

Undeveloped Coastal Barriers: Definitions and Delineation Criteria



U.S. DEPARTMENT OF THE INTERIOR
COASTAL BARRIER TASK FORCE
JANUARY 15, 1982

UNDEVELOPED COASTAL BARRIERS: DEFINITIONS AND DELINEATION CRITERIA

INTRODUCTION

Section 341(d)(1) of the Omnibus Budget Reconciliation Act of 1981 (OBRA -- P.L. 97-35; 95 Stat. 419) established a new Section 1321 of the National Flood Insurance Act of 1968 (NFIA). Section 1321(a) provides that no new Federal flood insurance coverage shall be provided on or after October 1, 1983, for any new construction or substantial improvements of structures located on undeveloped coastal barriers which shall be designated by the Secretary of the Interior. The designation of undeveloped coastal barriers by the Secretary shall be based on the definition provided in Section 1321(b) of NFIA which states:

> "For purposes of this section --
> (1) the term 'coastal barrier' means --
> (A) a depositional geologic feature (such as a bay barrier, tombolo, barrier spit, or barrier island) which --
> (i) consists of unconsolidated sedimentary materials,
> (ii) is subject to wave, tidal, and wind energies, and
> (iii) protects landward aquatic habitats from direct wave attack; and
> (B) all associated aquatic habitats including the adjacent wetlands, marshes, estuaries, inlets, and nearshore waters;
> (2) a coastal barrier or any portion thereof shall be treated as an undeveloped coastal barrier for purposes of subsection (a) only if there are few manmade structures on the barrier or portion thereof and these structures and man's activities on the barrier do not significantly impede geomorphic and ecological processes; and
> (3) a coastal barrier which is included within the boundaries of an area established under Federal, State, or local law, or held by a qualified organization as defined in section 170(h)(3) of the Internal Revenue Code of 1954, primarily for wildlife refuge, sanctuary, recreational, or natural resource conservation purposes shall not be designated as an undeveloped coastal barrier for purposes of subsection (a)."

This definition of an undeveloped coastal barrier was not a new creation of the drafters of Section 1321 of NFIA. Rather, it incorporates portions of, and is otherwise adapted from, the definition in the proposed Coastal Barrier Resources Act (CBRA -- see S. 1018 or H.R. 3252 as introduced in the 97th Congress) which was itself a product of earlier consideration of this issue by the Congress and the Department of the Interior. H.R.3252 was introduced in the House on April 27, 1981, by Congressman Thomas B. Evans, Jr. of Delaware, one of the co-sponsors of what is now Section 1321 of NFIA. The companion bill in the Senate, S. 1018, which was introduced by Senator John H. Chafee of Rhode Island on April 28, 1981, contains definitions identical to those is in H.R. 3252. The relationship between Section 1321 of NFIA and S. 1018 was described by Senator Chafee on the floor of the Senate during debate on the OBRA Conference Report (Congressional Record, July 31, 1981, page S9000).

Once again, the legislative history of the OBRA provision and the pending Coastal Barrier Resources Act (S. 1018, H.R. 3252) demonstate that the definition in Section 1321(b) of NFIA was derived by the Congress based on work by the Department of the Interior in a series of efforts beginning in 1977 to delineate coastal barriers. These efforts were in response to several past executive and legislative initiatives. The relationship of the definition in OBRA to this previous work is cited in its legislative history including:

- o the report on the House-passed Budget Reconciliation bill (House Report 97-158, Volume I, page 100);
- o the conference action on OBRA (House Report 97-208, Book Two, July 29, 1981, page 712), and
- o in floor remarks by one of the House conferees for the OBRA bill who was also a coauthor of Section 341(d)(1) and (2) (Congressional Record, July 31, 1981, page H5792).

When the House-Senate Conference Committee took up the Budget Reconciliation bill in July 1981 to resolve differences between the two versions, the Senate version did not contain a provision concerning undeveloped coastal barriers (House Report 97-208, Book Two, July 29, 1981, page 711; and Congressional Record, July 31, 1981, page S9043). Hence, there is little legislative history in the Senate about the derivation and evolution of the definitions of undeveloped coastal barriers with regard to the OBRA legislation. However, the role of previous work by the Department of the Interior to define and delineate coastal barriers was recognized in the Conference Report by Senate as well as House managers as pertinent to the task of designating undeveloped coastal barriers required under Section 341(d)(1) and (2) of OBRA (House Report 97-208, Book Two, July 29, 1981, page 712)

The managers' statment, however, resulted in some confusion about the intent of the Conferees. Concern was expressed on the floor of the Senate prior to enactment of OBRA as to whether coastal barriers previously identified and mapped by the Department of the Interior as undeveloped were to be a principal basis for the Secretary's designation of undeveloped coastal barriers (Congressional Record, July 31, 1981, page S9043). The same question was asked on the floor of the House (Congressional Record, July 31, 1981, page H5793). Both Senate and House Conferees responded to these questions by reiterating or referring to the report of the managers of the bill in the Conference Report on OBRA which states "... the Conferees expect the Secretary to review carefully the definition contained in section 1321 in preparing the report of findings and proposed designation of areas covered in this section." (House Report 97-208, Book Two, July 29, 1981, page 712). Consequently, the areas to be designated by the Secretary of the Interior need not be identical those identified previously.

The purpose of this document is to present a complete and concise statement of definitions to be used for designating undeveloped coastal barriers in specific situations, as required by Section 1321(a) of NFIA. This task is based on the definition provided by Section 1321(b) of NFIA and is supported by a review of the definitions used previously by the Department of the Interior as well as the Conference Report and the remainder of the legislative history of this provision.

While the legislation defines undeveloped coastal barriers, the following points of clarification and amplification will enable accurate and consistent identification and delineation of undeveloped coastal barriers in specific situations. This discussion will also assure that delineation criteria are communicated clearly and in detail.

DEFINITION OF COASTAL BARRIERS

Distribution of coastal barriers.

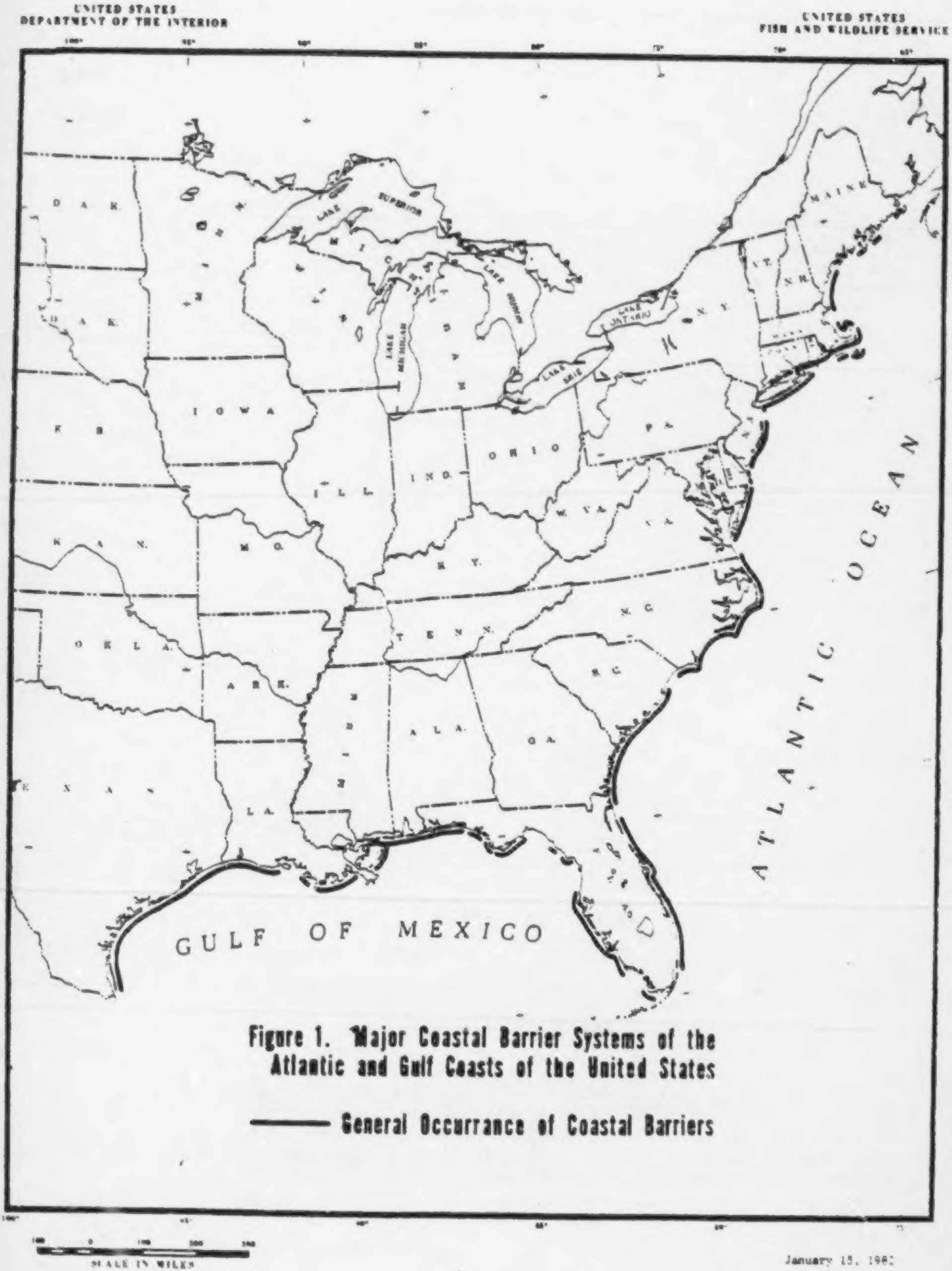
The term "coastal barrier" describes a class of low coastal landforms which are typically long and narrow and surrounded, or nearly so, by water. They are sufficiently above normal high tides, however, that they commonly have dunes and terrestrial vegetation. They are widely distributed along the Atlantic Ocean and the Gulf of Mexico coasts, in locations generally shown in Figure 1. In accordance with the legislative intent of OBRA's sponsors, who were also conferees from the House Banking Committee, only coastal barriers occurring on the Atlantic and Gulf of Mexico coasts are included (Congressional Record, July 31, 1981, pages H5792-H5793). While undeveloped coastal barriers may also occur along the West Coast, in Alaska, and in the Great Lakes, as well as in large embayments on the Atlantic and Gulf of Mexico Coasts (such as Chesapeake, Delaware and Tampa Bays), these coastal barriers have not been included within the scope of the present definition.

Types of coastal barriers.

Coastal barriers may be described generally, as in the statutory definition, with respect to their relationship to the mainland as bay barriers, tombolos, barrier spits, and barrier islands. The "mainland" includes the continental landmass as well as large islands such as Long Island, New York, and Martha's Vineyard, Massachusetts.

Section 1321(b)(1)(A) of NFIA lists four types of coastal barriers which are consistent with an accepted scientific classification of coastal barriers. The four types of coastal barriers specifically mentioned in the statutory definition -- bay barriers, tombolos, barrier spits and barrier islands -- are further described as follows:

A. Bay barriers are those coastal barriers that have grown entirely across the mouth of a bay and thus are connected to headlands at both ends (see Figure 2). These features occur from New York north, most notably in Rhode Island and along the south shore of Martha's Vineyard, Massachusetts. This type of coastal barrier encloses an aquatic ecosystem which is referred to locally as a salt pond.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N. J.
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ONTARIO
LAKE ERIE
GULF OF MEXICO
ATLANTIC OCEAN
SCALE IN MILES
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Figure 1. Major Coastal Barrier Systems of the Atlantic and Gulf Coasts of the United States

——— General Occurrance of Coastal Barriers

January 15, 1982

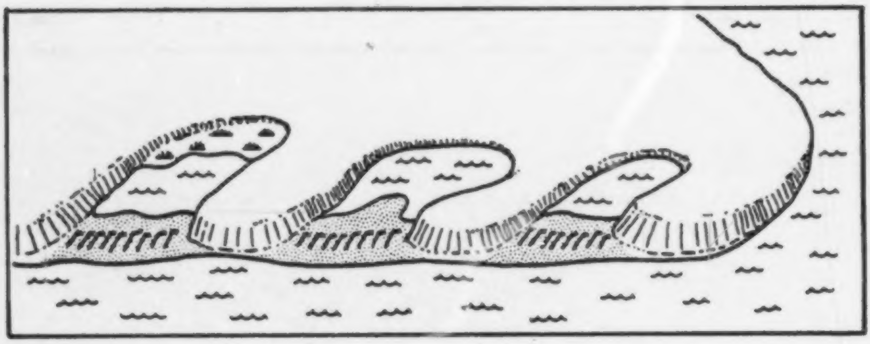

Figure 2. Bay Barriers[1]/

B. Tombolos are sand or gravel beach features, i.e., coastal barriers, which connect or tie one or more tombolo (i.e., offshore) islands to each other and to the mainland (see Figure 3). Coastal barriers of this type generally occur only in New York and New England within the geographic area covered by these definitions.

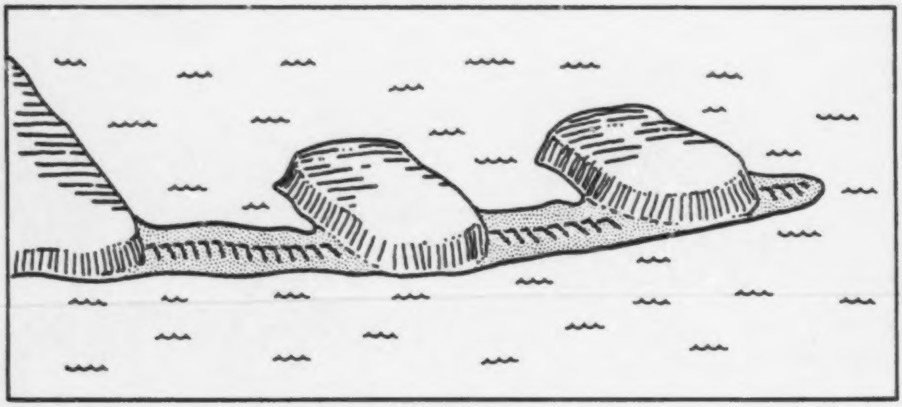

Figure 3. Tombolos [2]/

C. Barrier spits are those coastal barriers which extend into open water and are attached to the mainland at only one end (see Figure 4). They can develop into bay barriers if they grow completely across a bay. On the other hand, bay barriers can become barrier spits if a permanent inlet (i.e., one open for longer than a year) is created.

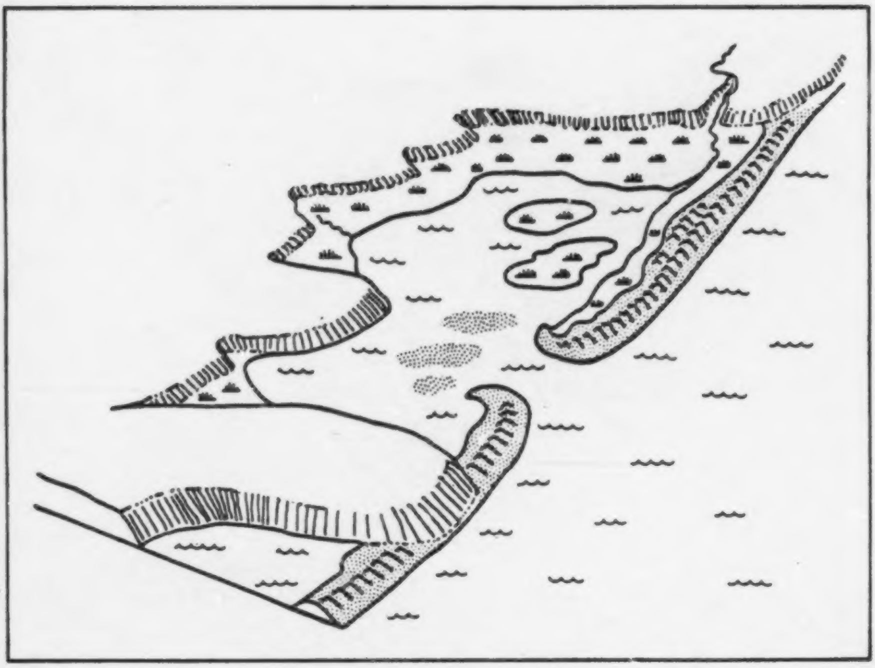

Figure 4. Barrier Spits[3]

D. Barrier islands are those coastal barriers completely detached from the mainland (see Figure 5). They are the major feature of the coastline from New York to Texas. Barrier spits may become barrier islands if their connection to the mainland is severed by creation of a permanent inlet.

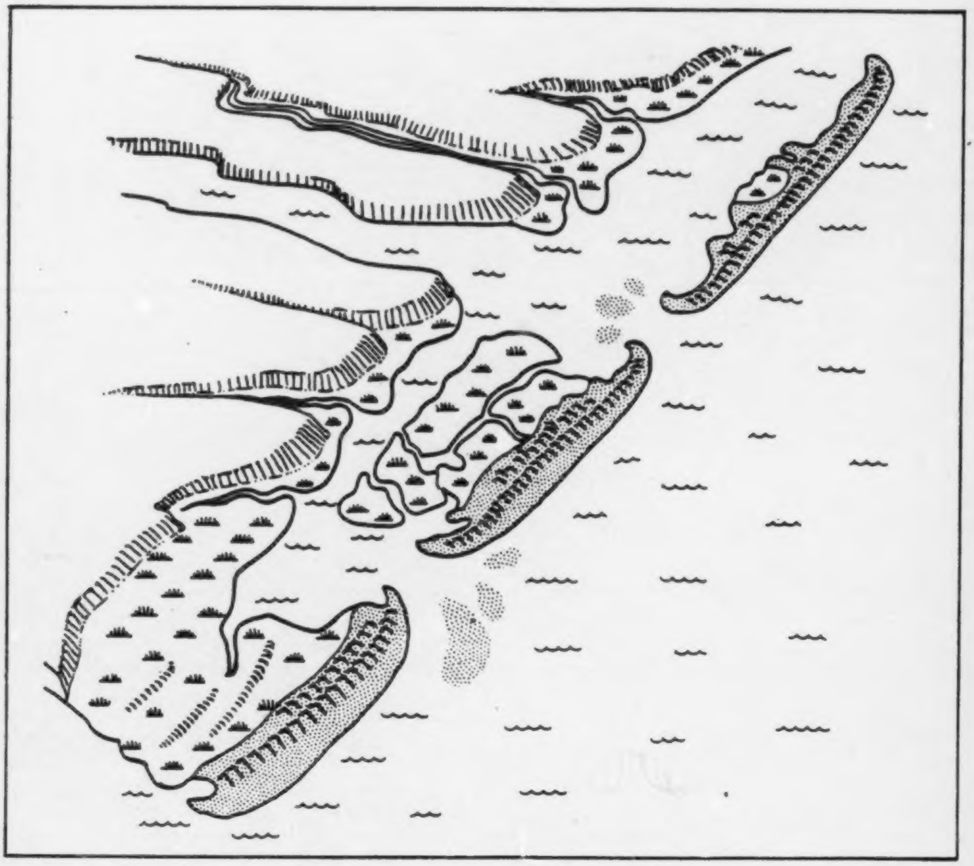

Figure 5. Barrier Islands[4]

There is substantial variation in physiographic characteristics among coastal barriers which can lead to confusion as to whether a landform is a coastal barrier. The nature and range of such variations are described and illustrated in the Appendix to elaborate and further amplify these definitions and as a basis for recognizing and identifying coastal barriers. But, in no way does this Appendix supercede these definitions.

The four types of coastal barriers described in this section reflect the three remaining characteristics of a coastal barrier cited in Section 1321(b)(1)(A) of NIFA. If a landform on the Atlantic or Gulf coasts exhibits each of these characteristics, it is a coastal barrier. These characteristics are that the landform:

- o is a depositional geologic feature which consists of unconsolidated sedimentary materials;
- o is subject to wave, tidal and wind energies, and
- o protects landward aquatic habitats from direct wave attack.

Each of these aspects of the definition is discussed further in the following sections.

Composition of coastal barriers

The terms "depositional" and "sedimentary materials" used in Sections 1321(b)(1)(A) and 1321(b)(1)(A)(i), respectively, of the NFIA are standard geological expressions. They refer to situations where materials, usually sand and gravel, are deposited in or by water. Under some circumstances, these sedimentary materials may also include or consist of silt, gravel, or larger rocks. When the beach consists primarily of larger rocks, these rocks are referred to as "cobbles" or "shingles".

Most coastal barriers consist of sedimentary materials which were deposited very recently in geologic terms (i.e., in the Holocene period). However, while many coastal barriers do consist entirely of Holocene sediments, some such as the Sea Islands of Georgia and South Carolina consist at least in part of sedementary materials deposited during an earlier geologic period. Age of sedimentary materials is not one of the criteria cited in the statutory definition of coastal barriers.

The word "unconsolidated", referring to sedimentary materials, in Section 1321(b) (1)(A)(i), means the sediments remain loosely aggregated and have not been cemented or compressed into solid rock. In tropical and semi-tropical regions, however, local surface deposits of beach rock (gravel and/or beach sand cemented together by calcium carbonate left when seawater evaporates) which is underlain or overlain by unconsolidated sediments may occur within the framework of unconsolidated sedimentary material on a coastal barrier. On the other hand, the occurence of extensive and continuous deposits of consolidated material such as coral or coquina indicates the area where this material occurs does not consist of unconsolidated sedimentary material.

Wave, tidal and wind energy and other factors which shape coastal barriers.

Wind, waves, and tides are the immediate forces which maintain and modify coastal barriers. The action of wind, wave (directly and by creating littoral, onshore - offshore or other currents), and tidal energy on unconsolidated sedimentary materials results in continuous linear or curvilinear features -- a beach ridge or berm -- located along the seaward side of the coastal barrier. The existence of these features demonstrates that the unconsolidated sedimentary material is subject to wave, tidal and wind energy as contemplated by Section 1321(b)(1)(A)(ii) of NFIA.

Typically, there are more or less continuous mounds of sediment (i.e., dunes) on top of or behind such linear features. Seaward of the coastal barrier's beach, submerged (i.e., offshore) bars are commonly associated with these linear features. Together with the beach, berm, and dunes, these submerged bars consititute the sand-sharing system of the coastal barrier. Frequently, the open waters of lagoons or estuaries are located landward of coastal barriers. A cross-sectional diagram of a coastal barrier indicating the general relationship of these and other components typical of coastal barriers is presented in Figure 6. Several of the many variations in this basic profile of coastal barriers are also presented in the Appendix.

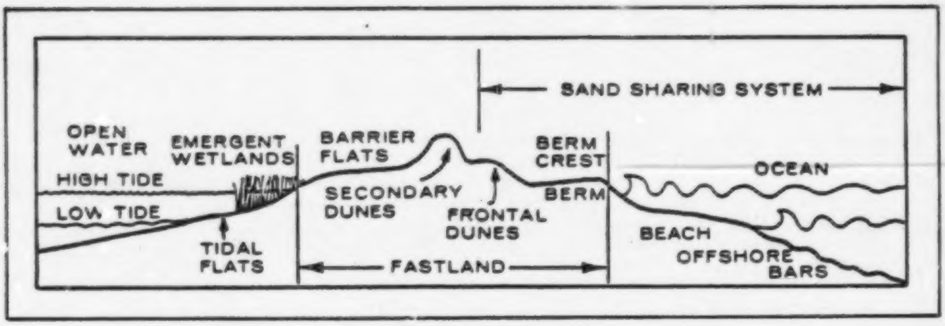

Figure 6. Basic Components of a Coastal Barrier.

Some coastal landforms such as tidal flats by themselves or where mangroves and other emergent wetland vegetation occur along an open coast are not considered coastal barriers. Although unconsolidated sediments may be present, sufficient wind, wave, and tidal energy is not present to create the linear sedimentary features indicative of coastal barriers.

During the last few millenia of geologic time, the rising sea level has been the major determinant controlling the location and configuration of coastal barriers. In concert with other natural forces and factors, the rate of sea level rise has been slow enough to allow migration (rather than submergence) of most coastal barriers. Generally, this migration has been in a landward direction. The current rate and directional trend of such migration varies widely. It depends on the type of coastal barrier, its orientation to prevailing winds, the local storm climate, the nature and amount of available sediment, the nature of the surface over which the coastal barrier is migrating, the apparent rate of sea level rise in relation to the coastal barrier as well as other factors. The complex interaction of these and other forces and factors operating at different intensities and over different time scales is responsible for the great diversity in the types of coastal barriers existing today. This also results in the great heterogeneity of (i.e., disparity among and variation in) wetland and other aquatic environments protected by or otherwise associated with coastal barriers.

Protection of landward aquatic habitats from direct wave attack.

In the presence of sufficient wind, wave, and tidal energy, unconsolidated sedimentary materials are deposited as linear or curvilinear features such as bay barriers, tombolos, barrier spits, and barrier islands. However, under Section 1321(b)(1)(A)(iii) of NFIA, these features are not coastal barriers unless they also protect landward aquatic habitats from direct wave attack. Protection of landward aquatic habitats from direct wave attack is one of the most important functions of coastal barriers. In addition, for definitional purposes, this attribute is the key feature distinguishing a coastal barrier from a beach situated on a mainland shore. Even though such mainland beaches may consist of unconsolidated sedimentary materials subject to sufficient wind, wave, and tidal energy to create linear features, they do not protect landward aquatic habitats from direct wave action.

Associated aquatic habitats.

Section 1321(b)(1)(B) of NFIA indicates that all associated aquatic habitats (i.e., those near the fastland* portion of coastal barriers) are considered part of the barrier. In addition, this aspect of the definition is discussed on page 99 of the House Committee report on the Budget Reconciliation bill (House Report 97-158, Volume I). Associated aquatic habitats include adjacent wetlands (including tidal flats and marshes), and lagoons or estuaries, coves, bays, and salt ponds (i.e., "open waters" landward of or "behind" the fastland portion of the coastal barrier), inlets and the nearshore waters seaward of the coastal barrier.

The statutory definition is consistent with the fact that all such associated aquatic habitats along with the fastland component are inseparable parts of a single system, the coastal barrier ecosystem. The statutory definition includes the entire coastal barrier system and the area the coastal barrier, or portions thereof, might occupy over the near term (i.e., generally at least 10 years) within the area to be delineated as an undeveloped coastal barrier.

DELINEATION OF COASTAL BARRIERS

Once a coastal barrier has been identified based on the statutory definition as elaborated on in the preceding section, further boundary delineation is made in the following manner:

A. On the landward side, the boundary is a line (to be described below) which encompasses the fastland core of the coastal barrier itself as well as proximal associated aquatic habitats consisting of wetlands (including tidal flats), shoals, islands, channels, and relatively small areas of open water landward of the fastland portion of the coastal barrier. This additional landward aquatic habitat must be reasonably associated geologically and ecologically with the fastland portion of the coastal barrier.

In general, the landward boundary of coastal barriers, as defined to include associated aquatic habitats, follows some natural or cultural feature within the aquatic system behind the coastal barrier. Such features should be recognizable on available maps or aerial photographs as well as on the ground.

Three basic types of aquatic environments, or combinations thereof, occur landward of coastal barriers. Each requires a somewhat different application of the general "landward boundary delineation" rule. These three types of aquatic environments and the specific applications of the "landward boundary delineation" rule are as follows:

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* That portion of a coastal barrier between the mean high tide line on the ocean side and the upper limit of tidal wetland vegetation (or, if such vegetation is not present, the mean high tide line) at the rear of the coastal barrier.

(1) A large expanse of open water exists between the coastal barrier and the mainland.

The landward boundary is drawn using as few straight lines as possible in the open water landward of any wetlands, including tidal flats, indicated on the latest available maps or aerial photographs. If a discernible natural channel, a man-made channel, or a political boundary exists in the open water behind, in close proximity to, and more or less parallel with the coastal barrier, such features may be used to delineate its landward boundary. Generally, if more than one of these features exists, the one closest to the fastland portion of the coastal barrier is used.

Salt ponds as well as coves and other partially enclosed bodies of open water, typically found northward from New York, are considered as special cases for purposes of delineating landward boundaries in open water. For salt ponds without a permanent inlet, the existence and nature of the aquatic system is dependent on and controlled by the fastland portion of the coastal barrier. Hence, for small salt ponds (i.e., those less than about 50 acres), the entire aquatic system (including open water and associated wetlands) is considered, ecologically and geologically, an integral part of the coastal barrier. The line where upland and aquatic system meet forms the boundary of the unit. The basis for delineating boundaries where bay mouth barriers or spits join the mainland is discussed below in Item D.

For larger salt ponds, the influence of overwash across and temporary breaching of (i.e., creation of a temporary inlet through) the fastland portion of the coastal barrier is usually of less significance in defining the nature of the salt pond aquatic system. Hence, the landward boundary of the coastal barrier is drawn as a straight line or along discernible channels through the open water behind the fastland portion of the coastal barrier and across any contiguous wetlands ajoining the points where the coastal barrier feature joins the adjacent headlands.

For coves or other partially enclosed bodies of water with permanent inlets or openings to offshore water, including baymouth barriers where a permanent breachway has been created, the boundary follows discernible channels or, if present, political boundaries closest to the fastland portion of the coastal barrier through the open water behind the fastland portion of the coastal barrier. In the absence of such features, the boundary is located in the open water behind the fastland portion of the barrier.

Another special case arises where isolated offshore barrier islands, especially those that are not elongated and parallel to the general coastline, occur within a large expanse of open water (i.e., when there are no distinct inlets adjacent to the island). The boundary is located in the open water on the three sides nearest the mainland to encompass associated aquatic habitats which typically consist of tidal flats.

(2) Continuous wetlands are present between the coastal barrier and the mainland, but a well-defined, continuous natural or man-made channel is present.

The landward boundary follows the discernible, continuous channel, either natural or manmade, closest to the fastland portion of the coastal barrier. For natural channels, the landward boundary generally follows the deepest portion of the channel. For man-made channels, the landward boundary of the coastal barrier unit is adjacent to the side of the channel closest to the fastland component of the coastal barrier.

(3) Continuous wetlands are present between the coastal barrier and the mainland, but a well-defined, continuous natural or man-made channel does not exist.

To the extent they are discernible, the landward boundary follows the natural or man-made channels closest to the fastland portion of the coastal barrier as in (2) above. For those portions of the aquatic system where discernible channels do not exist, the landward boundary is a straight line through intervening wetlands connecting the upper ends of the channels that do exist.

A variation of this "continuous wetland" situation occurs in New York and New England where streams entering the sea are often flanked by barrier spits. The embayments behind the barriers tend to be filled with salt marshes and tidal flats except for the main stream channel and, sometimes, tributary channels. In this case, there are no discernible channels through these wetlands that can be used to completely delineate the coastal barrier. Under these circumstances and because such wetlands are inseparably related to the coastal barrier, the landward boundary of small embayments encompasses the entire landward aquatic system (i.e., is the line where the wetland and upland meet). For larger embayments, the boundary follows the natural or man-made channels and/or political boundaries closest to the fastland portion of the barrier spits. Straight lines are used to connect these political boundaries or the ends of the channels with the point where the wetlands join the mainland. This wetland-mainland interface is followed to the fastland portion of the barrier spits.

B. On the ocean (i.e., seaward) side, the boundary is sufficiently seaward of low water to encompass the entire sand-sharing system (see page 9 and Figure 6) of the coastal barrier.

C. Where the end of a coastal barrier unit is at an inlet, the boundary is drawn through the deepest portion of the existing inlet channel.

D. At the juncture of certain coastal barriers (i.e., baymouth barriers, tombolos, and barrier spits) with the mainland, the boundary approximates (using as few straight lines as possible) the juncture of the fastland portion of the coastal barrier and the mainland. This juncture is usually recognized fairly readily on maps and aerial photographs as well as on the ground as a physical change in the topography or the nature of the land surface. In most instances, the composition and texture of the soil also changes at this juncture.

E. Both a tombolo (i.e., offshore) island(s) and the tombolo(s) which ties it (them) to the mainland or to each other represent a coastal barrier unit.

F. The exterior or outside edge of boundary lines drawn on the maps represent the boundary of the unit. Hence, boundaries are drawn immediately adjacent to cultural features (roads, railroads, man-made channels, political boundaries, etc.), not on them.

DEFINITION AND DELINEATION OF UNDEVELOPED COASTAL BARRIERS

A coastal barrier, or any portion thereof, is treated as an undeveloped coastal barrier in accordance with Section 1321(b)(2) of NFIA upon a determination that the area is not an "otherwise protected" coastal barrier consistent with the definition of that phrase provided later. In addition, each of three key elements discussed in this section -- "Any portion thereof....","Few man-made structures....", and "These structures and man's activities....do not significantly impede...." -- must be satisfied. The status of the coastal barrier with respect to these three elements is to be determined as of a date to be established by the Secretary of the Interior as a part of the final designation of undeveloped coastal barriers. Changes on coastal barriers related to these elements after that date will not affect the determination of whether the coastal barrier is considered developed under present provisions of Section 1321(a) of NFIA.

"Any portion thereof . . ." The statutory definition does not require an entire coastal barrier be included. Portions of a coastal barrier are also subject to being designated as undeveloped coastal barriers according to the provisions of the Omnibus Budget Reconcilation Act (OBRA) and its legislative history (House Report 97-158, Volume I, page 100). Previous delineation of undeveloped coastal barriers by the Department of the Interior used a minimum ocean-facing shoreline length of one-quarter (0.25) mile for a portion of the coastal barrier extending from the beach to the aquatic system behind the unit. In addition, the side boundaries of these portions of coastal barriers were usually more or less perpendicular to the ocean shoreline. This minimum shoreline length criterion was specifically mentioned in the legislative history of OBRA (*Congressional Record*, July 31, 1981, page H5793). The one-quarter mile minimum size is reasonable since undeveloped coastal barrier segments smaller than that are likely to be significantly affected by adjacent development and human activities. Once again, at least one-quarter mile of the coastal barrier must also satisfy the "Few man-made structures...." and "These structures and man's activities.... do not significantly impede...." phrases (or criteria) discussed below.

Under two specified circumstances, undeveloped portions of coastal barriers without the requisite one-quarter mile of ocean-facing shoreline surrounded by ("within") an otherwise protected area are included. Both cases involve situations where the adjacent area would be considered undeveloped if it were not protected from development and adverse human activity. For this special circumstance to apply, there must be an undeveloped portion of the coastal barrier extending from the ocean to the landward aquatic habitat.

In the first case, an undeveloped coastal barrier area with less than one-quarter mile of ocean shoreline or no ocean shoreline is included if the area contains at least 25 acres of undeveloped fastland contiguous with the fastland portion of an otherwise protected portion of the coastal barrier which has the necessary one-quarter mile or more of ocean shoreline. In the second case, an area or areas of undeveloped coastal barrier each containing less than 25 acres of fastland, but surrounded by an otherwise protected portion of the coastal barrier is included if some other portion of that coastal barrier is determined to be undeveloped based on the criteria outlined in the preceding paragraph. Figure 7 illustrates both circumstances where the "one-quarter mile" rule may be modified.

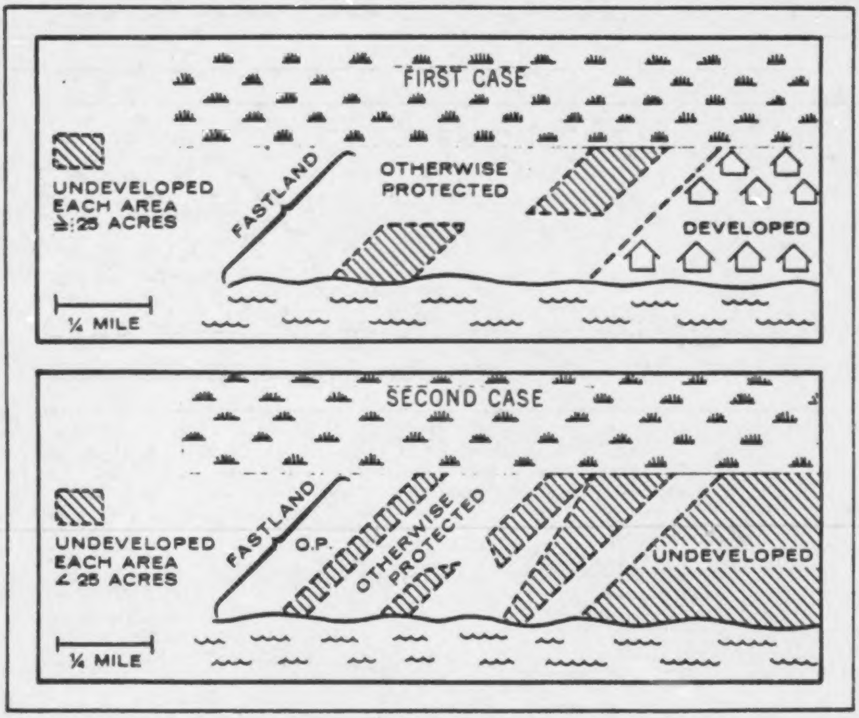
FIRST CASE
UNDEVELOPED EACH AREA ≥ 25 ACRES
FASTLAND
OTHERWISE PROTECTED
DEVELOPED
¼ MILE
SECOND CASE
UNDEVELOPED EACH AREA < 25 ACRES
FASTLAND
O.P.
OTHERWISE PROTECTED
UNDEVELOPED
¼ MILE

Figure 7. Circumstances Where Areas Without A Quarter Mile of Shoreline May Be Included

The location of boundary lines between an undeveloped portion of a coastal barrier and a contiguous otherwise protected or developed portion depends on the nature of the contiguous area. If it is an otherwise protected area, the side boundary is the property line of the protected area. For developed areas, the side boundary is placed immediately adjacent to where the clustering of structures or the existence of a full complement of infrastructure indicating that portion of the coastal barrier is developed ends. Such a break in the use of the coastal barrier is usually quite evident even if a few scattered structures are located on the undeveloped side of the boundary line.

In addition, such side boundaries are generally drawn across the unit perpendicular to the ocean-facing shoreline. Again, there are several circumstances where this general "perpendicular boundary" rule is modified. It is desirable that the boundary follow known property lines which, in many cases, may not be perpendicular to the shoreline. In addition, the boundary may not be perpendicular where an undeveloped portion of the coastal barrier is contiguous to an otherwise protected area which does not extend across the entire coastal barrier. Again, the result is a strip of undeveloped fastland extending from the ocean shoreline to the landward aquatic habitat across the coastal barrier. These modifications of the general "perpendicular boundary" rule are diagrammed in Figure 8.

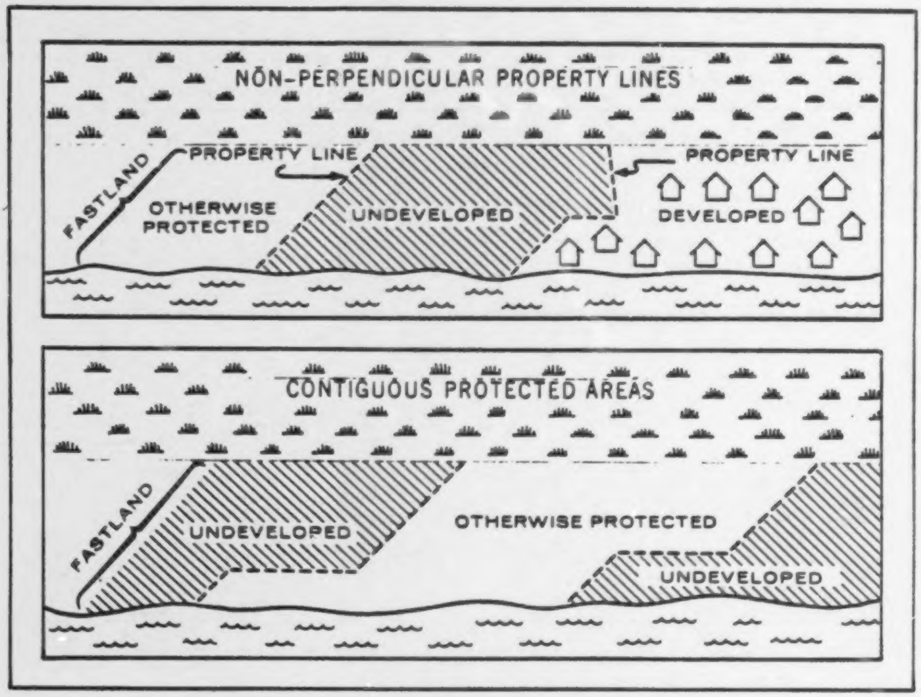
NON-PERPENDICULAR PROPERTY LINES
FASTLAND
PROPERTY LINE
OTHERWISE PROTECTED
UNDEVELOPED
PROPERTY LINE
DEVELOPED
CONTIGUOUS PROTECTED AREAS
FASTLAND
UNDEVELOPED
OTHERWISE PROTECTED
UNDEVELOPED

Figure 8. Situations Where Boundary Lines Across A Coastal Barrier May Not Be Perpendicular

"Few man-made structures . . ." Within all or part of an undeveloped coastal barrier, few man-made structures may be present. In previous delineation of undeveloped coastal barriers by the Department of the Interior, structures were defined as walled and roofed buildings. For purposes of the statute, the term "manmade structure" is based on the definition presently provided by the Federal Insurance Administration in 44 CFR § 59.1 and as further described herein. This is consistent with the House Committee's understanding of what constitutes a structure as noted on page 99 of House Report 97-158 (Volume I). As applied here, the term "manmade structure" means·

> A walled and roofed building, other than a gas or liquid storage tank, that is principally above ground and affixed to a permanent site as well as a mobile home on a foundation.

It is important to note that this definition of "manmade structure" is not one of the criteria used to determine eligibility for Federal flood insurance coverage. Flood insurance eligibility is a question between the property owner, the insurance agent and the Federal Insurance Administration as prescribed in the National Flood Insurance Act of 1968, as amended (including new section 1321). Eligibility is not affected by the definition of a manmade structure used to delineate undeveloped coastal barriers.

This definition of a manmade structure does not require that the structure be completed, but it does require that the walls and roof be in place. For instance, finishing work in a building with walls and roof in place may still remain to be done or an existing building with walls and roof in place may be undergoing alteration or repair.

Facilities such as docks, groins, utility poles, and pipelines are not counted as structures, but may be considered with regard to infrastucture or in assessing the impacts of man's activities on the coastal barrier (House Report 97-158, Volume I, June 19, 1981, page 100) as will be discussed later.

A density threshold of roughly one structure per five acres of fastland is used for categorizing a coastal barrier as developed. This threshold is cited by the House Committee in their report on the Budget Reconciliation Bill (House Report 97-158, Volume I, page 100). This threshold was used in previous Department of the Interior delineations and is based on scientific considerations and empirical observations. At densities greater than this threshold, the number of structures and the associated levels of human activity tend to interfere with the natural processes which build and shape coastal barriers. Below the threshold, existing development usually results in little or no interference with natural processes.

There are few coastal barriers which might be considered undeveloped that approach the one structure per five acres of fastland level of development. Most often, those coastal barriers where the density of structures does approach this threshold are presently being developed. Coastal barriers are usually either much more or much less developed than this threshold level. The threshold thus avoids ambiguity and facilitates easy segregation of developed from undeveloped coastal barriers.

To be considered in determining density of structures for purposes of Section 1321(b)(2) of NFIA, a man-made structure must:

- o be located on the fastland portion of the coastal barrier;
- o have a foundation, an enclosed ground area, or, if elevated, a projected ground area exceeding 200 square feet;
- o be a walled and roofed building as described previously, and

- o be constructed in conformance with Federal, State or local legal requirements (i.e., only legally authorized structures will be counted).

An appurtenant structure will be counted as a separate structure provided it satisfies the above criteria and is completely detached from any other structure.

In a number of instances coastal barrier units are complexes with more than one discrete segment (i.e., areas separated by inlets or intervening areas that are otherwise protected or clearly developed). When applying the "density threshold" rule to such complexes, density calculations will be for each discrete area of the unit individually, not the entire unit.

All or part of a coastal barrier will be considered developed, even when there is less than one structure per five acres of fastland, if there is a full complement of infrastructure in place. This is consistent with the clear intent of Congress on this point (Congressional Record, July 31, 1981, p. H5793). A full complement of infrastucture requires that there be vehicle access to each lot or building site (e.g., improved roads, docks, etc.) plus reasonable availability of some combination of utilities and services such as a water supply, a sewerage system, and electrical service required to support development. Ability to use on-site wells and/or septic systems on each lot or building site, when legally authorized, will constitute water supply and sewage infrastructure since they can be drilled and/or installed concurrently with the construction of the structure. The presence on a coastal barrier of a single road, or even a through highway, plus associated electric transmission and water lines in this highway corridor does not constitute the necessary full complement of infrastructure necessary to support development. (House Report 97-158, Vol. 1, June 19, 1981, p. 100; and Congressional Record, July 31, 1981, p. H5793).

Commitments or legal arrangements necessary for and leading toward construction of either structures or infrastructure will not be considered relevant to the development status of coastal barriers except to the degree they are actually reflected in the existence of structures or infra-structure on the coastal barrier, or portion thereof.

There are situations where initial construction is completed on the first phase(s) of a large project (100 or more lots or building sites in the aggregate for all phases) being developed by one entity, but where neither structures nor a full complement of infrastructure has been developed for at least a portion of the remainder of the property. In previous delineation of undeveloped coastal barriers, this remaining portion of the property has also been considered developed so long as this phased development has been part of the overall plans for the project from its initiation. Only a very few areas are likely to satisfy these criteria.

"These structures and man's activities . . . do not significantly impede . . ." The statutory definition requires that any structures present on all or part of an area considered an undeveloped coastal barrier and man's activities thereon must not significantly impede geomorphic and ecological processes. Where there is less than one structure per five acres on the fastland portion of the coastal barrier unit, the structures and man's activities on the unit will be determined to significantly impede geomorphic and ecological processes only if they interfere with these natural processes to an extent which impedes or is likely to impede the long-term perpetuation of the coastal barrier system. Notable among man's activities which may impede natural processes are extensive shoreline manipulation and stabilization, pervasive canal construction and maintenance, substantial dredging, continuous off-road vehicle use by large numbers of people, and heavy recreational use of the entire beach. However, man's activities alone, unrelated to structures, can not be considered under the existing provisions of Section 1321(b)(2) of the NFIA (House Report 97-158, Volume 1, June 19, 1981, page 100).

To properly assess the impacts of structures and human activities, the cumulative, often synergistic, impacts of these uses of and activities on each coastal barrier must be evaluated collectively. In some cases, such assessments will require informed, professional judgment. However, most of the barriers being considered for designation are substantially unaffected by such human influences and impacts so that such evaluations will usually be fairly straightforward.

DEFINITION OF UNDEVELOPED COASTAL BARRIERS HELD FOR CONSERVATION PURPOSES

As provided for in section 1321(b)(3) of the NFIA, a coastal barrier shall be determined to be included within the boundaries of an area established under Federal, State, or local law primarily for wildlife refuge, sanctuary, recreational, or natural resource conservation purposes upon a determination that:

- o the area is managed in a manner that will maintain the natural character of a coastal barrier ecosystem, or portion thereof, and
- o the provisions of law under which the area is established, and the real property interests in (i.e., ownership of) that area, are adequate to ensure that it will continue to be maintained in that protective status for the requisite primary purpose.

A coastal barrier shall be determined to be held by a qualified organization as defined in section 170(h)(3) of the Internal Revenue Code of 1954, as amended, primarily for wildlife refuge, sanctuary, recreational or natural resource conservation purposes when:

- o such a qualified organization has both the intent and capability to maintain the natural character of a coastal barrier ecosystem, or portion thereof, and
- o there is a sufficient real property interest in (i.e., ownership of) the coastal barrier unit to ensure its protection and maintenance.

A "sufficient real property interest" is an interest that would, at a minimum, be adequate to be recognized under the provisions of section 170(f)(3)(B)(iii) of the Internal Revenue Code of 1954, as amended. Such an interest need not automatically restrict the number of structures or the scope of man's activities consistent with the definition of "undeveloped coastal barrier", but it must provide perpetual protection primarily for wildlife refuge, sanctuary, recreational, or natural resource conservation purposes. The requirement of the tax code that the conservation purpose be protected in perpetuity limits the scope of this exception to those situations where the interest held by a qualified organization requires that both the present owner and its successors in interest hold the title or interest in question exclusively for these conservation purposes.

A "qualified organization" is an organization, as defined in section 170(h)(3) of the Internal Revenue Code of 1954, that has the intent and capability to maintain the natural character of a coastal barrier ecosystem, or portion thereof. Such an organization must be determined to have the requisite commitment and the resources to enforce its perpetual ownership rights in the lands and waters in question to protect this conservation purpose. Previous recognition of an organization as a qualified recipient of an approved conservation contribution pursuant to section 170(f)(3)(b)(iii) of the Internal Revenue Code of 1954, as amended, shall be an indication of this intent and capability.

1/ Adapted from: Godfrey, Paul J. 1978. Barrier Island Report (unpublished manuscript of Chapter 7 prepared for National Park Service). Page 7.

2/ Adapted from: Ibid., Page 9.

3/ Adapted from: Godfrey, Paul J. 1978. Management Guidelines for Parks on Barrier Beaches. Parks 2(4):5-10.

4/ Adapted from: Ibid.

APPENDIX

PHYSIOGRAPHIC VARIATION IN COASTAL BARRIERS *

Coastal barriers may be described on the basis of physiography and representative cross-sections. Of the many barriers along the Atlantic and Gulf coasts, at least nine physiographic types can be identified as follows:

SINGLE DUNE RIDGE WITH BACK-BARRIER DUNE FIELDS

Most coastal barriers of northeastern North America are characterized by a single dune ridge along the beach with lower dunes behind the main ridge sloping down to a salt marsh or other aquatic habitat and a lagoon. Such barriers can occur along retreating shorelines, but wind transport of sand dominates over the effects of overwash transport. Conditions favor the formation of a dune ridge, even after overwash, when fragments and seeds of dune grasses, mainly American beach grass (Ammophila breviligulata), wash up on the beach or overwash fan. Sprouting occurs in the driftlines, and soon these develop into dune ridges as the plants grow and trap sand. Adequate supplies of sand from non-vegetated areas are required for dune growth. Most of the plants are beach strand species, but given a sufficiently long disturbance-free period, maritime forests and freshwater wetlands in depressions in the dunes can develop.

Such coastal barriers are most common along shorelines with a good supply of sediments and where onshore winds occur during part of the year. Overwash moves sand to the back-barrier regions during storms, and then the overwash deposits become a source of sand for dune building as the wind deflates the deposits and move sand seaward again toward the back side of existing dunes or onto the beach. New dunes can form on the overwash deposits behind older dunes, or along the back sections of overwash fans where driftlines accumulate and survive subsequent storms. This process is presently underway on Duxbury Beach in Massachusetts. Examples of this type, located mostly in the Northeast, include the South Beach, Squibnocket, Muskeget, Cape Poge, and Coatue units in Massachusetts and the Southampton Beach, Napeague, and Mecox units in New York.

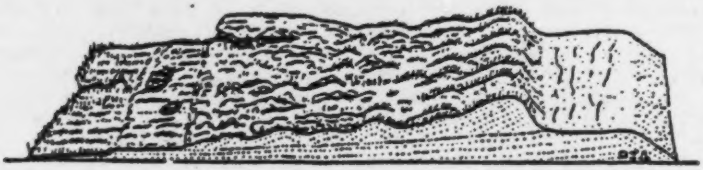

Figure A. Single Dune Ridge with Back-Barrier Dunes

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* Prepared for the Coastal Barriers Task Force by Paul J. Godfrey, Ph.D., National Park Service and Department of Botany, University of Massachusetts, Amherst, Massachusetts. Original drawings by Paul J. Godfrey.

SINGLE DUNE RIDGE WITH BACK-BARRIER FLATS

Coastal barriers with extensive flats behind a single, generally continuous dune ridge close to the beach fall into this category. These islands may be very wide. Their vegetation is typically grassland mixed with scattered shrub thickets. They occur on shorelines having generally low wave energy, punctuated by an occasional hurricane, such as the western Gulf of Mexico and eastern coast of Florida. The single dune ridge builds during periods of storm quiet, drawing sand from the beach with the help of continuous onshore winds. The flats behind may be formed by overwashing of the beach and dune during hurricanes. If the barrier is also broken by inlets, the formation of tidal shoals followed by inlet closure, again, creates broad, flat plains. Finally, barrier flats can form by wind blowing on unstabilized sand on the back side. These unstabilized sands often develop following a break in the dune ridge which allows sand to move into the back-barrier regions when onshore winds dominate. The best examples of Single Dune Ridge Barriers with Back-Barrier Flats (which can include flats that are salt marshes, fresh water marshes, and mangrove swamps) are in Florida. The Guana River and Usinas Beach units are especially distinctive and the Hutchinson Island, Lake Worth, and Matanzas River units are also characteristic. Topsail Island, North Carolina, and North Padre Island, Texas, also fit into this category.

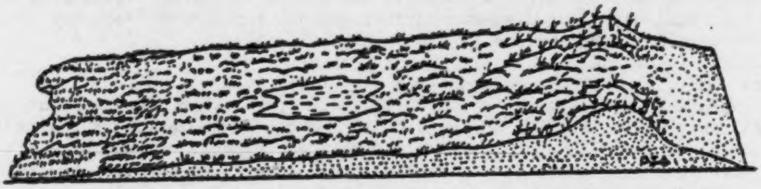

Figure B. Single Dune Ridge with Back-Barrier Flats

WASHOVER BARRIER

Coastal barriers usually found along seashores with high wave energy, moderate to small tide ranges, offshore prevailing winds, a restricted sand supply, and frequent storms, tend to be dominated by oceanic overwash. The dunes form a zone rather than a single line. Storm waters can easily flow through the dunes from the ocean to the lagoon. These barriers have the characteristics of rapidly retreating barrier systems: outcrops of salt marsh peat on the ocean beach, overwash sediments on top of earlier land surfaces (which can be upland vegetation, marshes, or tidal flats), and young salt marshes along the back side. Such barriers are "rolling over" themselves, as rising sea level and storms drive them toward the mainland. Inlets come and go with the major storms. Overwash and inlet changes, followed by rapid revegetation, produce broad and very flat back-barrier regions. Frequent storms maintain a fairly wide berm with dunes developing mostly in central sections of the barrier. Many of the plants characteristic of these coastal barriers are capable of quickly growing up through the overwash deposits if their rhizome and root systems remain intact. Otherwise, colonization of barrier flats occurs through seedlings, regenerating plant fragments, or lateral growth from existing communities. Overwash or inlet deposits dropped into tidal lagoons are rapidly colonized by salt marsh grasses.

With lower overwash frequency, shrub thickets can form along the back side of the barrier flats, and will move toward the beach if conditions permit. Examples of the washover barriers abound on the Atlantic Coast and portions of the Gulf Coast and include: in Massachusetts - Duxbury Beach, Namskaket Spits, Dead Neck, Tuckernuck Island spits; in New York - the Bostwick and Tobaccolet areas on Gardiners Island; in Virginia - Assawoman and Metomkin Islands; in North Carolina - the Lea, Island Complex, and Masonboro Islands; in South Carolina - Waites Island and, Bird Key; in Alabama - Dauphin Island; in Mississippi - Round Island and the north-south section of Cat Island; in Louisiana - various islands within the Bay Joe Wise and Grande Terre units; and in Texas - Matagorda Peninsula and High Island units. Some washover barriers have been transformed into single dune ridge barriers by the construction of artificial dune ridges; these barriers will probably reassume washover physiography if the dune line erodes.

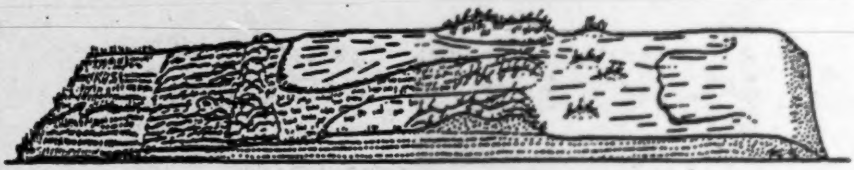

Figure C. Washover Barrier

MULTIPLE BEACH RIDGES

Coastal barriers that are mostly marshland, with low sandy ridges arranged linearly, and sometimes coalescing within the marsh area, and made up of beach deposits rather than dunes, fall into this category. The basic difference between this type of barrier and the multiple dune ridge barrier is that the beach ridges were formed by a prograding shoreline and represent the highest elevation reached by wave deposits on the beach. Dunes usually do not develop on top of the beach ridges, as in dune ridge barriers. The intervening areas between the ridges contain marshes of either fresh or saltwater, depending on their proximity to and the existence of connections with the sea. All but the highest ridges are flooded by even moderate storm tides, and severe storms can inundate the entire barrier. Even so, the ridges are above normal tide levels and often support trees and shrubs that are tolerant to occasional flooding. Good examples of multiple beach ridge barriers are St. Phillips, Pine, Pritchard, and Otter Islands in South Carolina, North Captiva Island on Florida's Gulf coast, and the Bolivar Peninsula in Texas.

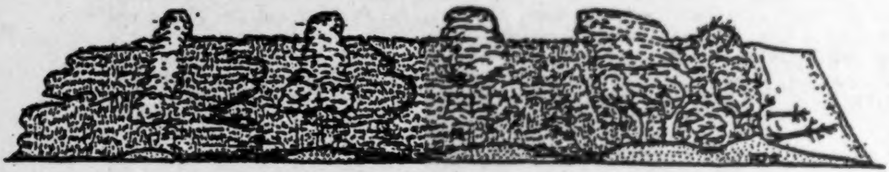

Figure D. Multiple Beach Ridges

CHENIER BARRIERS

A variation on the multiple beach ridge barrier is the "chenier" system found along the northern Gulf coast, primarily in Louisiana. A chenier barrier consists of low sand ridges, either linear or curving. Although sometimes coalescing, they are usually separated from each other by extensive marshes growing on mud and/or silt deposits between the ridges. Chenier barriers arise on prograding shores where beach ridges have been formed; a river then lays down mud and silt between the ridges. Storms can also create chenier-like deposits of sand and organic matter on the muddy marsh flats behind the beach. Chenier ridges are above the normal tide levels and, therefore, support upland vegetation, such as evergreen oaks, from which they get their name ("chenier" is French for "oak"). The best examples of chenier barriers are the Chenier au Tigre and Sabine units in Louisiana, and Sea Rim in Texas.

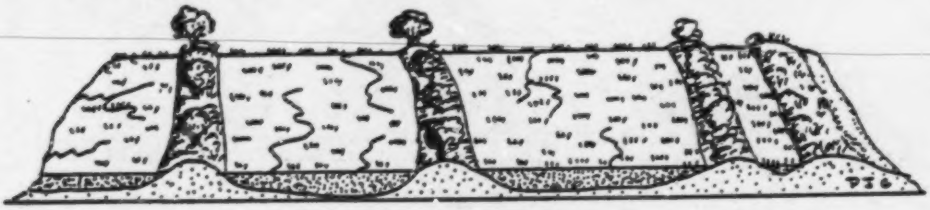

Figure E. Chenier Barriers

SINGLE BEACH RIDGE BARRIER

These barriers have narrow beach-berm structures of cobbles, sand, fine sand, and even silt or mud. The beach ridge is created by the action of waves along the shore and usually represents the highest level to which sediments are transported by normal tides. The type is common in areas where sand is deficient, and dune formation processes greatly limited. Such barriers are usually found along low energy coasts with low tide ranges. Very low, scattered dunes may be present along the shore if conditions permit. These barriers are easily flooded by higher than normal tides. If the substrate is mostly rock and cobbles, the beach ridge may reflect the tide levels produced by major storms. These heavy beach deposits require much greater wave action to be moved than sand, and they are found along coasts where sand is non-existent or rare, and wave energy can be high. Certain barriers in New England, such as North Scituate Beach in Massachusetts, fall into this category. A single beach ridge can protect salt marshes and mangrove swamps. Beach ridge - mangrove barriers are most common along the Gulf coast of Florida, where the Pepperfish Keys and The Reefs units are good examples. Beach ridge barriers with marshes are widely distributed along the Atlantic and Gulf coasts, but the best examples are along the northern Gulf coast, such as in the Grande Terre Islands and Isles Dernieres units of Louisiana.

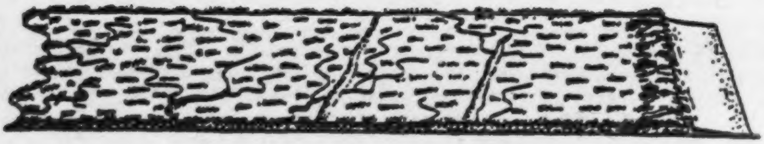

Figure F. Single Beach Ridge Barrier

MULTIPLE DUNE RIDGES

Coastal barriers having multiple dune ridges, usually parallel to each other and to the shoreline or in curved patterns, are found in many coastal areas with a history of seaward accretion of beaches, or growth of a spit across open water, especially where onshore winds prevail. Such barriers may now, however, be retreating. These coastal barriers consist of a series of rolling dune ridges and swales. Vegetation on the ridges is usually a maritime forest whose top is sheared level by the salt-laden winds. Along the seaward side are open dunes and dune fields covered by grassland vegetation. Like the "dune-field" coastal barriers discussed below, multiple dune-ridge barriers are best developed where beaches are oriented across prevailing winds, and an adequate supply of sand is available in the littoral drift, or at least has been in the past. Many examples exist: Bogue Banks in North Carolina along with several in South Carolina and Georgia being amoung the best. Some barriers have dune ridges separated by depressions reaching to the water table. These contain fresh water marshes and ponds which support a great diversity of plant and animal life, as in the Buxton Woods region of Cape Hatteras. Bogue Banks in North Carolina, Little St. Simons Island in Georgia, Amelia and Talbot Islands in Florida, and the central portion of the east-west section of Cat Island, Mississippi, are good examples.

If a multiple dune-ridge barrier which is naturally stabilized by vegetation is disturbed by human activities or storms, the seaward dunes may begin migrating inland. Such events may also occur through the normal course of coastal barrier retreat in response to rising sea level. Active dunes bury older dune ridges; forests are killed and wetland filled. As the dune moves on, "ghost forests" appear as dead trees are exposed. The broken dune fields on the ocean side may experience overwash during storms. Salt marshes or sandy beaches may be found along the back side, depending on wave conditions.

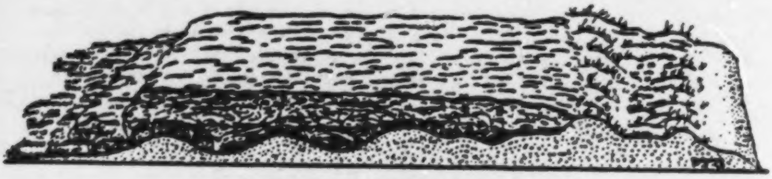

Figure G. Multiple Dune Ridges

DUNE FIELDS

These are coastal barriers containing extensive systems of large sand dunes, which may migrate around on the barrier. They consist of huge sand masses, generally best developed where they lie across prevailing winds, and have beaches with good sediment supplies. Wind determines the landscape, and oceanic overwash occurs only in the foredunes. The large dunes may have been derived from earlier, more regular dune systems which started moving following human or natural disturbances. Where sand is moving, crescent-shaped dunes usually occur. Some of the highest dunes on the East Coast are of this type. Vegetation consists mostly of dune grasses with interspersed areas of bare sand; where the sand is stable, maritime shrublands and forests develop on the dunes. Aquatic habitats, particularly salt marshes, may fringe the lagoon side.

Examples can be found all along the East Coast with Nags Head on Bodie Island in North Carolina being one of the most notable. Other examples are on Currituck Banks, the western end of Bogue Banks, and Shacklefoot Island in North Carolina, and at the western end of Horseneck Beach in Massachusetts.

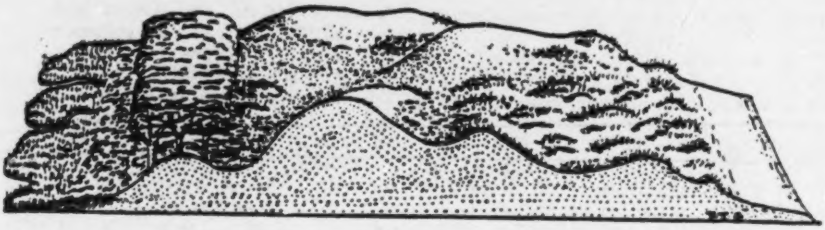

Figure H. Dune Fields

COASTAL PLAIN REMNANT

Relatively high, rather flat land masses that were once part of the coastal plain, but have been isolated by sea level rise, fall into this category. Geologically recent dunes are found along the seaward side, either attached to the front or as a modern barrier in front of the older land. Vegetation consists primarily of a maritime or coastal forest, covering the area as far as the most seaward dunes. Extensive aquatic habitats, particularly salt marshes, may fringe the back side, or eroded bluffs may be present where there is strong wave action along the lagoon or bay shore. Coastal Plain Remnant barriers are most common among the "Sea Islands" of South Carolina and Georgia where sea energy is low and tide ranges are moderate (8 to 10 feet). Good examples of Daufuskie Island in South Carolina and St. Catherines Island in Georgia.

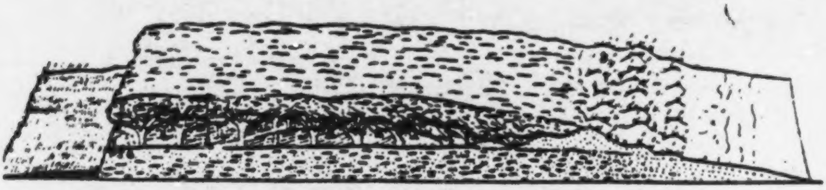

Figure I. Coastal Plain Remnant

January 1982

PURPOSE AND USE OF DRAFT INFORMATION SUMMARIES FOR UNDEVELOPED COASTAL BARRIERS

A draft information summary has been prepared for each undeveloped coastal barrier unit to describe the coastal barrier and to evaluate it relative to the criteria established in Section 341(d)(1) of the Omnibus Budget Reconciliation Act of 1981 (OBRA) and the draft "definitions" document amplifying the statutory definition prepared by the Coastal Barrier Task Force.

Item 1 through 6 of the draft information summary provide basic geological information required to describe the location of the coastal barrier. These items are self-explanatory.

Item 7 provides data on the total area of the coastal barrier and its principal land types—fast lands and associated aquatic habitats. A further breakdown is provided for the different types of associated aquatic habitats—wetlands interior waters, and open waters. Fast lands are dry land areas located between mean high water on the ocean side and either (1) mean high water on the mainland side or (2) if tidal wetland vegetation is present, the upper limit of such vegetation on the interior of the coastal barrier. Wetlands include tidal marshes bordering channels, canals, coves, and lagoons; non-tidal wetlands bordering salt ponds; and tidal swamps and mangroves. Interior waters include aquatic habitats such as ponds, sloughs and impoundment, as well as small bogs and marshes, completely surrounded by fast lands. Open waters include bays, lagoons, salt ponds, and coves, as well as channels and canals with direct connection to these open waters, and shoals and tidal flats not supporting wetland vegetation.

Items 8 through 13 provide information relevant to determining whether a particular area fulfills the criteria for an undeveloped coastal barrier specified in OBRA and the associated draft definitions prepared by the Department of the Interior. Item 8 indicates the length of ocean-facing beach. It is measured as the maximum linear extent of the beach between inlets for barrier islands, between an inlet and the mainland juncture for a barrier spit, between mainland junctures for bay barriers, and between the ends of tombolos either in open water or at a mainland juncture.

Item 9 identifies publicly owned lands within the coastal barrier unit. These are lands which, on the basis of available information, do not appear to satisfy the requirements of Section 341(d) of OBRA.

Item 10 presents a preliminary evaluations of the type of each coastal barrier (i.e., is it a bay mouth barrier, a barrier spit, a tombolo or a barrier island) as specified in Section 341(d)(1)(A) of OBRA. It also identifies which physiographic category or categories listed in the Appendix to the draft definitions best describes the coastal barrier.

Item 11 lists the total number of man-made structures (i.e., walled and roofed buildings) in the coastal barrier. Item 12 identifies the existing complement of infrastructure such as roads, docks, and utilities available to support development of each lot and building sites on the coastal barrier.

Item 13 identifies past and on-going human activities affecting or having the potential to affect the condition of the coastal barrier or the natural processes responsible for maintaining it. Recreational uses, shoreline manipulation, dredging, oil and gas exploration and extraction, and highways and their use are examples of such activities. A preliminary conclusion as to the commulative impacts of such human activities on the coastal barrier is provided.

Item 14 provides information to give additional perspective on the natural resources and conditions on the coastal barrier.

Item 15 lists the principal references and informational materials consulted in the preparation of the information summary.

The data and information contained in the summaries is preliminary. The Department of the Interior welcomes comments and recommendations concerning its accuracy and comprehensiveness.

STATEMENT OF
NEIL L. FRANK
DIRECTOR
NATIONAL HURRICANE CENTER
NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
DEPARTMENT OF COMMERCE
BEFORE
SUBCOMMITTEE ON ENVIRONEMTNAL POLLUTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

FEBRUARY 3, 1982

Chairman Chafee and Members of the Subcommittee:

Thank you for the opportunity to speak at this hearing on what a hurricane does to a barrier island.

Let me start out by saying that hurricanes are not freak acts of nature that were designed to inflict death and destruction on people. We have a tendency to believe this because that is the way we measure the impact of a hurricane. How many died and what was the dollar loss? But, in actual fact hurricanes perform a very useful function in the atmosphere.

Too much heat can build up in the tropical regions during the summer. This heat has to be released and nature has devised a very effective way of doing it. It is called the hurricane. When the hurricane forms, it really represents a tropical atmosphere boiling; and as the hurricane moves out of the tropical regions, heat is removed.

If man would learn to live in harmony with nature, we could minimize our problems. If you go to California and build your house on a fault line, don't fuss about earthquakes. If you come to the Gulf or Atlantic Coasts and build your home on one of the barrier islands, don't fuss about hurricanes. I believe hurricanes have a right to sweep across our barrier islands every few years. I am not sure it was intended that we should live there. So be it, we have decided to do so; and this has generated a serious hurricane problem.

Multitudes of people have discovered the beautiful way of life along the coast. In the decade of the 1960's while we experienced an increase of about 13 percent in the United States population, there was a 40 percent increase in the number of people who located on the beaches and barrier islands.

There are three aspects of the hurricane we worry about. Everybody knows hurricanes are associated with strong winds and heavy rains. But, the main impact on barrier islands is the storm surge. This is the least understood aspect of the hurricane, yet the storm surge is the element that causes the great loss of life. Nine out of ten people who die in a hurricane drown in the storm surge.

The storm suge is a dome of water maybe 50 miles wide that sweeps across the coast near the point where the eye of the hurricane makes landfall. Superimposed on this dome of water are hugh waves.

What does a storm surge do to a barrier island? Let's briefly review a few past hurricanes. In 1938, a major hurricane devastated the south coast of New England and the eastern part of Long Island.

On West Hampton Beach, there were 179 homes on the barrier island before the storm. Only 26 remained after the storm. I visited West Hampton Beach in 1979 and counted 900 homes in that same area.

On the New Jersey Coast, Absecan Inlet separates Brigantine Island from Atlantic City. There is a natural migration of the sand from the north to the south on the Jersey coast, and this kept filling up the inlet. The Corps of Engineers solved the problem several years ago by building a jetty on the north side of Absecan Inlet. A large sand bar formed north of the jetty, and a developer recently built 250 homes on the sand bar. While the people do not believe they have a hurricane problem, the records show 3 severe hurricanes in the 1800's destroyed large portions of Brigantine Island.

On the North Carolina Coast, Long Beach Island is located just west of Wilmington. In 1954 there were 357 homes in that community before Hurricane Hazel arrived, and after the storm only 5 of those remained. There are 2,000 homes in that area today.

Seabrook, Kiawah, and Hilton Head Islands are located on the South Carolina coast. In 1893, 20 feet of water associated with a severe hurricane inundated all of the islands on the South Carolina coast, and 2,000 people were lost. 1893 was a bad year for hurricanes because we lost another 2,000 persons on the Louisiana coast.

Farther south there are 70,000 people in the Florida Keys today, and their escape route is a narrow two-laned road with 50 bridges. A recent study by the Governor's staff shows it will take over 20 hours to evacuate. We strive to give 12-hours lead time in our warnings for evacuation.

Recent comprehensive evacuation studies for a 5-county area around Ft. Myers, Florida, show it will take between 20 and 30 hours to evacuate. Similar studies for Tampa Bay and Galveston Bay indicate evacuation times in excess of 20 hours. We do not even know what the minimum evacuation time is for other extremely vulnerable communities such as New Orleans and the Jersey coast, but it seems certain they will probably be in excess of the 12-hour lead time we are providing.

On the South Texas coast, Hurricane Beulah put over 30 new cuts through Padre Island in 1967. In time the sand fills back in these cuts. Today, there are condominiums that have been build in these old washovers.

Galveston Island was the scene of the worst disaster we have ever had in the United States. We lost 6,000 lives in the 1900 hurricane when the Island was inundated. After the hurricane a 17-foot seawall was built to protect the city. Down through the years this seawall has done a nice job of protecting the city, but destroyed the beach. The sand gradually drifted to the east and collected on the southeast part of Galveston Island. Did you know that a builder recently put a new condominium on Galveston Island ahead of the seawall!

Hurricane Allen, in 1980, came ashore on the most sparsely populated segment of Padre Island, between Corpus Christi and Brownsville, Texas. Fortunately, this hurricane, at one time, the second most powerful in the Atlantic, weakened as it came ashore. While we don't know the precise dimensions of the storm surge, I counted over 50 cuts and washovers in a 50-mile stretch of Padre Island, north of the developed area on the southern part of the Island. The first such cut was only a few hundred yards north of a condominium in the Brownsville area.

In summary, Mr. Chairman, this Nation has a very serious hurricane problem. We are more vulnerable to the hurricane than we have ever been in our history. Poor building codes, out of date evacuation plans, and over development are setting the stage for a major disaster.

As you carry on your deliberations, I would submit to you that there is more than just an economic and physical resource on barrier islands. There is also a human resource; and, unless we do something very quickly to protect that human resource, we may have a hurricane disaster where the death roll will equal or exceed that which we experienced in Galveston in 1900.

I appreciate the opportunity to come before you here today. I would be pleased to respond to any questions.

APA

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STATEMENT OF
ERIC R. JANKEL

ON BEHALF OF THE
AMERICAN PLANNING ASSOCIATION

BEFORE A HEARING OF THE
SUBCOMMITTEE ON ENVIRONMENTAL POLLUTION
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ON S. 1018

THE COASTAL BARRIER RESOURCES ACT

FEBRUARY 3, 1982

Senator Chafee and members of the Subcommittee: I am Eric Jankel, the Executive Director of the Narragansett Bay Water Quality Management District Commission in Providence, Rhode Island, and a member of the American Planning Association. I am here today to provide the Subcommittee with the comments and recommendations of the Association.

The American Planning Association is a national organization of over 21,000 city, regional and state planners, elected and appointed officials at all levels of government, professional practitioners, educators, and interested citizens. Many of our members are deeply involved in day-to-day decisions affecting the nation's vulnerable coastlines. The APA membership belongs to 46 Chapters in every state and Congressional district. The Association's primary objective is to advance the art and science

OF PLANNING FOR THE IMPROVED DEVELOPMENT OF COMMUNITIES, CITIES, REGIONS, STATES AND THE NATION.

THE ASSOCIATION MAINTAINS A SET OF "PLANNING POLICIES" WHICH ADDRESS A WIDE RANGE OF ISSUES OF CONCERN TO THE MEMBERSHIP AND ARE DEVELOPED THROUGH A NATIONAL CONSULTATIVE PROCESS. THE ASSOCIATION'S SUPPORT FOR THIS BILL STEMS FROM ITS POLICY WHICH MAINTAINS THAT "THE NATURAL FUNCTION OF BARRIER ISLANDS [AS WELL AS] WETLANDS, MARSHES, ESTUARY AREAS, REEFS, AND DUNES MUST BE PRESERVED, ENHANCED, AND, WHERE POSSIBLE, RESTORED."

THE CONCEPT OF A COASTAL BARRIER RESOURCES SYSTEM AS EMBODIED IN S. 1018 AND ITS COMPANION IN THE HOUSE (H.R. 3252) IS A RECOGNITION BY THE CONGRESS AND THE FEDERAL GOVERNMENT OF THE SPECIAL ECOLOGICAL VALUE THAT THESE LANDFORMS HOLD FOR ALL

TYPES OF LIVING RESOURCES. IT IS FURTHER A RECOGNITION THAT THE SENSITIVE ECOLOGY OF THESE AREAS DEPENDS UPON THE INEVITABLE AND CONSTANT ALTERATIONS FROM WIND AND SEA.

WE HAVE OFTEN SEEN THE TRAGIC LOSS OF LIFE AND WILDLIFE HABITAT, AS WELL AS PROPERTY DAMAGE AND ENVIRONMENTAL HARM, WHERE MAN HAS ATTEMPTED TO SETTLE ON THE SHIFTING SAND AND DEVELOP THE UNDEVELOPABLE.

WHILE THE ASSOCIATION FULLY SUPPORTS THE CONCEPT EMBODIED IN S. 1018, WE WOULD LIKE TO OFFER A FEW SPECIAL COMMENTS WHICH THE ASSOCIATION BELIEVES WOULD IMPROVE THE BILL. I WOULD LIKE TO HIGHLIGHT THE ASSOCIATION'S COMMENTS FOR YOU THIS MORNING, BUT WOULD ASK THAT YOU ACCEPT MY WRITTEN STATEMENT FOR THE RECORD.

The objectives of this bill will be furthered where states and localities, which have immediate jurisdiction over development, also take supportive actions at their levels. For example, pressures to develop coastal areas in Massachusetts are now constrained by its Wetlands Protection Act, by regulations adopted under the Coastal Zone Management Plan and by a recent Governor's Executive Order restricting state-assisted or state-permitted development on barrier beaches. Such local initiatives may be helpful elsewhere, and should be encouraged.

Section 4 establishes the system. In subsection (a)(2), there is a definition of an "undeveloped" coastal barrier. The definition relies on the extent of damage of previous development. The Association would urge a recognition in 4(a)(2)

OF THE REMAINING PROTECTIVE FUNCTIONS OF THE COASTAL BARRIER. CERTAINLY, COASTAL BARRIERS VARY FROM THE GULF OF MEXICO TO NEW ENGLAND, BUT THE DETERMINATION OF WHETHER A SPECIFIC COASTAL BARRIER IS UNDEVELOPED SHOULD BE BASED UPON ITS UNIQUE PROTECTIVE CAPACITY AND NOT MAN'S FOOTPRINT. THE MAPS PREPARED BY THE FISH AND WILDLIFE SERVICE, WHICH ARE USED AS A REFERENCE IN S. 1018, COULD BE SUPPLEMENTED BY THE SERVICE THROUGH A REVIEW DESIGNED TO IDENTIFY COASTAL BARRIERS WHICH HAVE PROSPECTIVE PROTECTIVE VALUE AND DESERVE INCLUSION IN THE SYSTEM IN SPITE OF MAN'S PREVIOUS ACTIVITIES. THE SERVICE COULD REPORT TO THE CONGRESS ON THIS POINT AT THE TIME OF ITS REPORT REQUIRED BY SECTION 10(A)(1).

ONE OF OUR MEMBERS CITES THE EXAMPLE OF DAUPHIN ISLAND, A BARRIER ISLAND ON THE GULF COAST OF ALABAMA, WHERE DOZENS

OF HOMES AND OTHER STRUCTURES WERE COMPLETELY DESTROYED BY A HURRICANE IN 1979. THIS ISLAND HAS SEVERAL HUNDRED RESIDENTS. REDEVELOPMENT IS OCCURRING WITH TOTAL DISREGARD FOR THE FUTURE AID AND RECOVERY COSTS WHICH TAXPAYERS WILL HAVE TO BEAR IN THE EVENT OF NEW HURRICANE DAMAGE. THIS ISLAND WOULD PROBABLY NOT BE CONSIDERED "UNDEVELOPED," BUT THE COSTS OF RECOVERY AFTER A HURRICANE DISASTER ARE LIKELY TO GROW OVER THE YEARS AS DEVELOPMENT CONTINUES ON OPEN BEACHES. S. 1018 COULD BE THE ESSENTIAL VEHICLE FOR DISCOURAGING FUTURE DEVELOPMENT.

SECTION 5 OF THE BILL SETS FORTH THE LIMITATIONS ON FEDERAL EXPENDITURES WITHIN THE SYSTEM. SUBSECTIONS (A)(1) AND (A)(2) PROHIBIT THE PURCHASE OF STRUCTURES AND CERTAIN FACILITIES. THE ASSOCIATION BELIEVES THAT IN CERTAIN CIRCUMSTANCES, WHERE

THE COST/BENEFIT RATIO IS FAVORABLE, THE ACQUISITION OF MAN-MADE FEATURES WOULD BE CONSISTENT WITH THE PURPOSES OF THE BILL.

EVEN AFTER PASSAGE OF THIS ACT, THERE WILL CONTINUE TO BE A GREAT DEAL OF PRESSURE TO MODIFY THE BOUNDARIES OF COASTAL BARRIERS (SECTION 4-C) AND TO PROVIDE EXCEPTIONS (SECTION 6). THERE MUST BE IN THE LEGISLATION MORE SPECIFIC PROCEDURES, INCLUDING A FORMAL REVIEW PROCESS, TO DISCOURAGE POTENTIAL ABUSES IN THE DESIGNATION OF COASTAL BARRIERS, IN BOUNDARY MODIFICATIONS AND IN THE EXCEPTIONS PROCESS. FOR EXAMPLE, IN THE CASE OF THE EXCEPTIONS APPROACH, THE PROSPECTIVE USE OF COASTAL BARRIERS FOR ENERGY DEVELOPMENT PURPOSES SHOULD BE MADE ONLY IF SUCH DEVELOPMENT DOES NOT ENDANGER EXISTING AREAS OF NATURAL BEAUTY, CAUSE A THREAT

OF DAMAGE TO ECOLOGICAL SYSTEMS, OR EMIT AIR POLLUTANTS AT LEVELS SIGNIFICANTLY HIGHER THAN THOSE PERMITTED AT INLAND LOCATIONS. COMMENTS FROM STATE AND LOCAL GOVERNMENTS SHOULD BE REQUIRED AS PART OF THE PROCEDURES FOR MODIFYING BOUNDARIES OR PROVIDING EXCEPTIONS AS WELL AS THE SUPPLEMENTARY INFORMATION CALLED FOR IN THE ADDITIONAL REPORT REQUIREMENTS NOW IN THE BILL (SECTION 10-D-2).

S. 1018 RECOGNIZES THE NEED FOR COORDINATION, CONSULTATION WITH, AND COMMENT FROM LOCAL GOVERNMENTS IN WHICH COASTAL BARRIERS ARE LOCATED. THE SUCCESS OF THIS PROGRAM WILL REQUIRE THE COOPERATION OF LOCAL GOVERNMENTS, AND THE SECRETARY SHOULD CONSULT DIRECTLY WITH THESE OFFICIALS AS WELL AS WITH THE GOVERNORS. A TREMENDOUS AMOUNT OF CURRENT, SOUND AND COMPREHENSIVE PLANNING BY

STATES AND LOCALITIES HAS TAKEN PLACE, INCLUDING PLANNING UNDER THE COASTAL ZONE MANAGEMENT PROGRAM. WE WOULD URGE THAT THE SECRETARY'S RECOMMENDATIONS CALLED FOR IN SECTION 10 CONSIDER STATE AND LOCAL OBJECTIVES REFLECTED IN THEIR COMPREHENSIVE PLANS.

CONSULTATION WITH THE ENVIRONMENTAL PROTECTION AGENCY, THE OFFICE OF COASTAL ZONE MANAGEMENT WITHIN THE DEPARTMENT OF COMMERCE, AND THE FEDERAL ENERGY MANAGEMENT AGENCY SHOULD BE REQUIRED.

FINALLY, SENATOR CHAFEE, WE HAVE AN EXAMPLE OF THE NEED FOR THIS LEGISLATION IN OUR OWN STATE OF RHODE ISLAND. IN 1975, THE TOWN OF SOUTH KINGSTON ENACTED AN AMENDMENT TO ITS ZONING ORDINANCE PROHIBITING RESIDENTIAL CONSTRUCTION ON

THE BARRIER BEACH COMPLEX AT GREEN HILL, WHICH HAD BEEN DESIGNATED A HIGH FLOOD DANGER DISTRICT. A PRIVATE PARTY LATER PURCHASED A THREE-QUARTER ACRE LOT ON GREEN HILL BEACH, WAS DENIED A BUILDING PERMIT BY THE TOWN, AND THEN FILED AN ACTION IN RHODE ISLAND SUPERIOR COURT ARGUING THAT THE TOWN'S ACTION CONSTITUTED A TAKING OF PRIVATE PROPERTY WITHOUT COMPENSATION. THE SUPERIOR COURT, IN ANNICELLI V. TOWN OF SOUTH KINGSTON C.A. NO. 76-7 (WASHINGTON COUNTY SUPERIOR COURT 1980), DECIDED AGAINST THE TOWN OF SOUTH KINGSTON. THE TOWN HAS FILED AN APPEAL TO THE RHODE ISLAND SUPREME COURT BASED UPON MISCONCEPTIONS ABOUT HAZARDS OF DEVELOPMENT ON BARRIER BEACHES, PROPER TESTS TO DETERMINE WHETHER ENVIRONMENTAL REGULATION AND LOCAL ACTION TO PROTECT PUBLIC HEALTH AND SAFETY CONSTITUTE COMPENSABLE TAKING.

This is an example of a community acting in the public interest to protect against the loss of life and property. Clearly, if S. 1018 were law, the incentives for development of Green Hill would be lessened, for, without the infrastructure of roads and bridges, development pressure would be lessened.

The enactment of a Coastal Barrier Resources Act by the Congress would reduce the potential liability on the U.S. Treasury and the taxpayer, it would save lives and it would preserve critical wildlife habitat.

Let me end my testimony by saying that all the members of the American Planning Association join me in thanking the Chairman and the Subcommittee for focusing on coastal barrier protection. If we can provide any additional input to your legislative development process, we would be pleased to do so.

STATEMENT ON BEHALF OF THE STATE OF LOUISIANA

by:

Gerald Bordelon
Chairman, Louisiana Coastal Commission
Member Coastal Protection Task Force

and

Sherwood Gagliano, PhD.
President, Coastal Environments, Inc.

on

S 1018 - Coastal Barrier Resources Act
To Direct the Secretary of the Interior to
Provide for the Protection of Barrier Islands
and
For Other Purposes

before

Environmental Pollution Subcommittee
of the Committee on Environment and Public Works
of the United States Senate

February 3, 1982

Mr. Chairman, members of the sub-committee, I am here representing the State of Louisiana and to present our State's position on S 1018, which you and a number of your colleagues have introduced.

We appreciate your recognition of a national need to protect and conserve coastal fish and wildlife resources, and to prevent development on coastal barriers or any action or program that would encourage such development. This type of legislation is definitely needed along the Atlantic coast and much of the gulf coast of the United States. However, in its current form the bill presents some problems for Louisiana. Careful study of the bill identified three major areas of concern. These involve, 1) some of the basic premises, 2) conflicts with existing management framework and duplication of effort, and 3) some administrative aspects of the bill. Our testimony will focus on these three areas.

In addition to this testimony, we are submitting other items that will be useful in assessing the gulf shore and barrier islands of Louisiana, including the characteristics of our coast, the severity of erosion and deterioration, and the problems that we face in maintaining it. Accompanying the statement are: Excerpts from the Final Environmental Impact Statement of Louisiana's Coastal Resources Program; a "Report on Special Projects for Coastal Louisiana" by the Louisiana Senate and House Committees on Natural Resources (October 12, 1981); Louisiana Act 41 of the First Extraordinary Session, Creating the Coastal Environment Protection Trust Fund; a paper reprinted from a scientific journal entitled "Land loss in the Mississippi River Deltaic Plain", and Excerpts from the first edition of the U. S. Interior Department, Bureau of Land Management publication entitled "Regional Transportation Management Plan, Gulf of Mexico". If you should desire more information, we will be happy to provide it to the Committee.

Basic Premises

First, let's examine some of the basic premises and see how they apply to Louisiana. They are as follows:

1. The premise upon which the bill is based is that development on coastal barriers causes loss of valuable fish and wildlife, scenic, natural, historic, archaeological, cultural, and economic resources. We share that view, and as our testimony will demonstrate, Louisiana has a clear policy of recognizing the value of such resources and protecting them. Ample evidence for these concerns can be found in the state's programs in the areas of wildlife and fisheries, culture and recreation, and coastal zone management.
2. Another premise is that harmful development may be aided by Federal assistance through such projects as erosion protection, and beach stabilization. Louisiana has received very little help from the Federal Government in protecting its shoreline from erosion and deterioration. Yet, when the preliminary estimates of the acreages of coastal lands to be included within the "Coastal Barrier Resources System" are totaled, it is apparent that a high percentage of the total lies within our state. The preliminary figures indicate that more than 25% of the acreage under the jurisdiction of the bill lies within Louisiana. This large area has not required significant expenditure of Federal tax dollars in the past for protecting developed areas and it is unlikely that large expenditures to protect or encourage development will be required in the future.

In view of the above, it seems inappropriate that our state should be more affected by this bill than any other in the union.

3. The bill states that certain Federal Government actions and programs have subsidized and encouraged coastal barrier development and implies that without this assistance, most development would not be economically feasible. We are in agreement with these points, but must add that it is highly unlikely that the undeveloped segments of Louisiana's Gulf shore could be developed under any circumstances, with or without Federal assistance.
4. It is implied, but not specifically stated, that measures to stabilize coastal barriers (i.e., engineering structures, beach nourishment, revegetation, etc.) are not effective. Indeed, there have been poor designs and misapplications of these techniques, and many examples of structural failure can be cited. However, there are many legitimate reasons for structural approaches to shoreline management in addition to inducement for development. In Louisiana, these include the protection of natural, cultural, and economic resources. In the instance of our state, the value of the natural resources at stake far exceed the cost of stabilizing the gulf shore. It can also be demonstrated that structural measures are effective in preventing loss of such resources through coastal erosion and deterioration when properly designed and applied.
5. The remedy proposed in the bill is to identify undeveloped coastal barriers along the Atlantic and gulf coast and to restrict future Federal expenditures and financial assistance

which have the effect of encouraging development. We have had an opportunity to review the draft maps delineating Coastal Barrier Resource System Units in Louisiana (Units 111-117). We feel that most, if not all of those within Louisiana that have been designated as part of the coastal barrier resources system, are not true coastal barriers, already have significant energy-related development and/or are not suitable for recreation oriented development (resort, second home, etc.). We feel that the bill, if enacted in its present form, would unduly restrict the state from devising and implementing stabilization measures along its gulf shore that are necessary to protect the very resources that the bill purports to protect.

6. Shorelines other than those found along the Atlantic and gulf coasts are presumably excluded from the bill because development and consequent damage to fish and wildlife resources is not considered to be likely on, among, or adjacent to coastal barriers in these areas. The largest barrier coast in the continental United States is found along the coast of Alaska, and yet this coastline has been excluded. Louisiana's deltaic coast shares more similiarities with the deltas of the Colville, Yukon, and other Alaskan rivers than it does with coastal barrier and bay sound systems along the mid-Atlantic coast. If the character of these Alaskan deltas provide a basis for exclusion, then certainly the Mississippi Delta should provide a similar basis.

7. Implicit in the bill is the concept that coastal barriers along the Atlantic and gulf coast fall into the same class of low coastal landforms. However, the bill fails to recognize that

these features occur within the context of major systems in various segments of the Atlantic and Gulf that are vastly different. The barrier islands of southeastern Louisiana are transgressive phase features of the Mississippi River Delta system, which differ significantly from the barrier features found along the barrier-bay system coasts of Virginia, North Carolina, West Florida, Texas, and Mississippi. Southwestern Louisiana is dominated by the Chenier Plain coastal system. It is questionable that gulf shore features along this segment of the coast can be classified as "coastal barriers". Our review of the bill and draft maps indicates that the features and the areas included within the bill are very arbitrary and that many features along the Louisiana coast should not be classified as coastal barriers.

8. The only type of development that the bill seems to recognize is recreation-oriented commercial development. Louisiana's gulf shore has very few areas that are developed for recreational uses. In most areas, this category of development is simply not feasible because of limited accessibility, particularly by road, and physical characteristics such as limited sand beaches and high turbidity in adjoining waterbodies. However, another category of development is widespread along our gulf shore and throughout our coastal zone. The first offshore oil well in the United States was drilled within sight of Point Au Fer, which has erroneously been classified as a barrier island. Subsequently, hundreds of wells have been drilled on and in close proximity to barrier islands and gulf shore. Also, numerous

pipelines and facilities needed for mineral production on the Outer Continental Shelf pass through these coastal features. These are essential support facilities for our mineral industry. This type of development should be considered as having equal weight with human habitation in determining whether an area is to be designated as developed.

Conflicts with Existing Management Framework and Duplication of Effort

Louisiana, through its Department of Wildlife and Fisheries, has a long history of fish and wildlife habitat management in numerous refuges throughout the coastal zone. A series of legislative Acts have given the State Department of Wildlife and Fisheries; Office of Public Works, Department of Transportation and Development; and the Coastal Management Section, Department of Natural Resources the authority to create, operate and maintain a system of siphons, structures, and canals for freshwater diversions to enhance coastal wetlands.

After a difficult and prolonged legislative struggle, Louisiana has developed a viable, federally-approved Coastal Management Program. The program was not developed merely as a means of obtaining federal funds, but rather it represented the first serious attempt to provide overall management of the vast resources present in Louisiana's Coastal Zone.

The program received federal approval in September, 1980. The basic intent of Act 361, which established the Louisiana Coastal Resources Program, is to protect, develop, and where feasible, restore or enhance the resources of the coastal zone. Furthermore, one of the goals of the program is to recognize the value of special features of the coastal zone such as barrier islands, fishery nursery grounds, and recreation areas, and to manage those areas so as to enhance their value to the people of Louisiana.

Specific guidelines for coastal activities were enumerated with this Act to serve as criteria for granting, conditioning, denying, revoking, or modifying coastal use permits. All coastal uses and activities must be planned, sited, designed, constructed, operated and maintained to avoid destruction or adverse alterations of barrier islands, beaches, dunes, wetlands, tidal passes and other natural biologically valuable areas or protective coastal features. Likewise detrimental changes in littoral sediment transport processes, and increases in the potential for flood, hurricane or other storm damage are prohibited. The guidelines for linear facilities strictly prohibit any dredging activity from traversing or adversely affecting any barrier island. In response to these guidelines the Bureau of Land Management has designated Louisiana's barrier islands as unsuitable for future OCS oil and gas pipeline siting.

During the time since federal approval was received, no dredging activity has been permitted on any undeveloped barrier island. Several major oil pipelines have been re-routed to avoid any impact on these islands. Past dredging of pipeline and oil access canals has permanently damaged many of the islands and beaches. Such canals greatly accelerate the rate of erosion and shrinkage of the remaining islands. These man-made problems, along with regional subsidence, sea level rise, and a sediment-deficient environment all contribute to the rapid loss of Louisiana's barriers.

The uniqueness of this situation, coupled with the tremendous value of the fish and wildlife, petroleum, mineral and recreational resources protected by these diminishing barriers prompted studies to identify areas of critical erosion, and to determine the effectiveness of pilot programs to stabilize or enhance barrier islands, beaches, and wetlands in these areas. In response to the findings of these and other studies, the State legislature established Act 41 to create a $35 million dollar trust fund for the prevention of coastal erosion and saltwater intrusion. The Coastal Management Section of the Department of Natural Resources, the Department of Wildlife and Fisheries, the Department of Transportation and Development, experts from the private sector, and members of the scientific community have coordinated to develop recommendations for several specific beach and barrier island enhancement pilot projects, as well as some freshwater diversion plans.

It would appear that implementation of these restoration and enhancement programs would be in line with the goals of S 1018 in that they are intended to protect the fish and wildlife habitats and other natural resources on and behind coastal barriers. We believe that a conflict with the State's federally-approved program would arise because the present wording of S 1018 prohibits the state from preserving the very resources that the bill is designed to protect.

In addition, the bill states that a program of coordinated action by Federal, State and local governments is critical to the more appropriate use and conservation of coastal barrier resources. Such a "program of coordinated action by Federal, State and local governments" is presently existing in Louisiana in the form of a federally-approved Coastal Management Program. Previous interagency coordination has been extensive, and will continue to be so, among the three levels of government. This will ensure that proper evaluation and regulation of coastal uses and activities occurs, as well as making certain that plans developed to preserve Louisiana's eroding wetlands and shorelines are consistent with the federally-approved Coastal Management Program. In summary, we believe that the bill proposes a duplication of the efforts already being accomplished by a federally-approved program, and that the wording of the bill would prevent the implementation of portions of Louisiana's Coastal Management Program as approved by the federal government.

Administrative Considerations

In addition to the fundamental points which we have already raised, there are several administrative problems in the bill. The State of Louisiana would like to be consulted along with the Secretary regarding any Federal expenditures or financial assistance for projects qualifying as exceptions to the proposed legislation. Further clarification of the term "consultation with the Secretary" is needed. The bill should specify how this relates to coordination required under existing acts such as the Fish and Wildlife Coordination Act, National Environmental Policy Act, and the Clean Water Act. The Secretary is also given the authority to make minor boundary modifications in areas to be included under the act. What constitutes a "minor" boundary modification? The maps that delineate the areas under the jurisdiction of the bill should be a part of the bill and affixed to it and not provided by the Secretary within sixty days of the date of the enactment.

A final point of concern regards preparation of reports by the Department of the Interior. This responsibility seems to be directly related to, and a partial duplication of, the Coastal Management Program. As we have indicated in our testimony, Louisiana has a viable Coastal Management Program. We also have a very competent staff capable of providing the kinds of information required in these reports. We believe this requirement could be best fulfilled for Louisiana by existing State agencies.

Summary and Recommendations

1) The bill should not restrict any actions and programs designed to protect,

stabilize, and/or enhance natural resources on coastal barriers and related areas.

2) Delineation of coastal barriers on the maps should be consistent with the definitions as set forth in the bill.

3) A coastal barrier should not be delineated as undeveloped and included under this bill unless development is feasible.

4) Energy related development should be considered as a type of development in identifying undeveloped coastal barriers.

5) Maps showing areas to be included under the act should be affixed as an integral part of the bill.

6) The bill should be consistent with Louisiana's federally-approved Coastal Management Program.

7) The State of Louisiana would like to be consulted along with the Secretary regarding any Federal expenditures or financial assistance for projects qualifying as exceptions to the proposed bill.

8) Consideration should be given to fulfilling the reporting requirements through existing State programs.

In summary, Louisiana is supportive of efforts to protect, preserve, and enhance valuable coastal natural resources. We endorse these features that are consistent with, and do not duplicate efforts of Louisiana's federally-approved Coastal Management Program. We believe that full consideration of all criteria related to classification of coastal barriers and their development and use will clearly demonstrate that little if any of Louisiana's coastal area could be included under the jurisdiction of this bill.

Testimony before the Subcommittee
on Environmental Pollution
on the Proposed Coastal Barrier Resources Act
S.1018 and H.R.3252
February 3, 1982

Presented by	on	Texas Land Commissioner
Mike Hightower, Director	behalf of	Bob Armstrong
Land Resources Program		Texas General Land Office
Texas General Land Office		

I am sorry that I could not be here today to personally present this testimony relevant to the proposed Coastal Barrier Resources Act. Nevertheless, I request that my statement be made part of the official hearing record and appreciate the opportunity to present testimony before this committee.

I am presenting this testimony in support of the proposed legislation known as the "Coastal Barrier Resources Act." I have been in my capacity as land commissioner directly and indirectly involved with numerous coastal issues and legislation relevant to the management and thus development of the Texas coastal area. I would, however, like from the onset to emphasize that I am not against development in our coastal area. As a manager of state lands, I do not prohibit development except in some critical areas. More realistically I manage the development in accordance with state laws, federal laws, and in harmony with the environment.

The proposed legislation, while not prohibiting development on barrier islands, discourages rapid expansion and ill-planned structures by prohibiting federal subsidies which encourage such. Before I discuss these issues more in detail, I believe that a brief synopsis of the Texas coast and the importance of its barrier island system is appropriate.

The state of Texas encompasses a vast area of over 176 million acres with a coastline of 376 linear miles. Ownership of much of this land has been retained by the state. For example, lands owned by the state and dedicated to the General Land Office for management comprise approximately 22.5 million acres. Approximately 4.25 million acres of this land is submerged land in the coastal area; specifically the lands under the bays, estuaries and Gulf of Mexico out to 10.35 miles or three marine leagues. As land commissioner I am responsible for the day-to-day management of these lands.

The barrier island system in Texas is composed of five islands - all fronting on the Gulf of Mexico. These are from upper to lower coast as follows: Galveston Island, Matagorda Island, San Jose Island, Mustang Island, and South Padre Island. There are also two large peninsulas, Bolivar Peninsula and Matagorda Peninsula, which are basically analagous to barrier islands in their functions.

Much of the state's ownership in the bays and estuaries is comprised of the tidelands and marsh areas which are on the back side of and contiguous to the barrier island system. This system parallels the majority of the Texas coastline for its 376 miles. The barrier islands of Texas are dynamic yet fragile natural environments that provide essential protection to our coastline and sustain highly productive wetland areas. These islands must be managed wisely to ensure the continued productivity of a variety of commercially valuable coastal ecosystems and the continued protection of our coastal communities and residents.

Rapid growth in the Texas coastal area has been placing increasing pressures on the upland-coastal areas in addition to the island systems. Many of these activities have national as well as statewide importance. Interests such as agriculture, fishing, manufacturing, petroleum products production, ports and shipping, recreation and tourism, and attendant housing developments all compete for the use of a limited yet highly important natural resource base.

The beaches and sand dunes of the barrier islands,in conjunction with the adjacent Gulf areas, all interact to reduce the impact of the constant yet unpredictable storm forces on the bays, estuaries, and populated coastal communities. At the same time, however, these islands also offer aesthetic beauty and a wide array of recreational opportunities for all to enjoy. Disruption of these natural island systems by development has resulted in many detrimental effects. Not only have protective sand dunes been altered and destroyed, resulting in tremendous monetary loss to coastal communities, but alterations of these islands have also resulted in the filling of valuable wetland and marsh areas on state-owned land. Productivity of these areas is then greatly reduced and in some cases lost completely.

For example, ill-planned or excessive development involving activities such as channelization, finger canal development, bulkheading, highways, causeways, sewer systems, housing developments, hotels, condominiums, etc., can all be detrimental to barrier islands and their attendant marsh and wetland areas. As I have stressed in the past, these marsh areas are some of the most highly productive areas - dollar-for-dollar - than any other lands known.

I have spent the last few minutes discussing the importance of barrier islands to coastal communities for storm protection and the valuable aspects of marsh and wetland areas contiguous to these islands. I will not burden this committee with dollar amounts representing the monetary benefits derived by these functions - as these figures can be readily obtained. I would, however, now like to address the monetary losses to taxpayers and citizens that have resulted from developments on Texas' barrier islands.

Since 1871 to date, a total of 71 hurricanes and tropical storms have struck the Texas coast. Hurricanes alone have caused over $3 billion in damage since 1900 (1978 dollars). The last four major Texas hurricanes have directly affected these populated barrier islands. In 1961, Carla made landfall just south of Galveston Island at Port O'Connor; Beulah in 1967 struck Brownsville opposite South Padre Island; in 1970 Celia directly hit Port Aransas on Mustang Island; and in 1980 Allen hit just north of Brownsville on South Padre Island. Total damage figures and cost of rescue efforts for these hurricanes, with the exception of Allen, totaled in excess of $2 billion at 1978 dollar values.

When Hurricane Beulah hit South Padre Island in 1967, over 90 percent of all dwellings were declared uninhabitable. Hurricane Celia in 1970 resulted in over 50 percent of all buildings of Port Aransas being severely damaged or destroyed. Hurricane Allen in 1980 luckily made landfall north of heavily populated Brownsville but still resulted in over $235 million in damage of an area considered to be sparsely populated. Forty million dollars of this was property damage of only South Padre Island.

In the decade since the last major hurricane struck the Texas coast, the population of the state's barrier islands has greatly increased. This increase may be particularly attributed to the availability of federal flood insurance and other federal grants and subsidies. For example, South Padre Island has grown at an ever increasing rate.

One theory supported by a previous mayor of the City of South Padre Island is as follows: "Insurance makes all the difference in the world in a place this prone to hurricane damage. The boom began in 1971 when we started getting insurance and when you start getting insurance, you start getting mortgage money, and when you get that, you get development." (Austin American Statesman, May 20, 1970).

Current trends indicate that the destruction of property on barrier islands due to hurricanes has drastically increased while the loss of lives has decreased. However, as the islands and adjacent mainland continue to develop, it appears likely, according to diaster experts, that loss of property and lives both will increase. Ultimately, the size and intensity of a storm is probably less important than the population density where the hurricane makes landfall. Thus, hurricanes in Texas which caused only slight damage during the 1960's and early '70's could very well produce major diasters in the coming decades if poorly managed and thus uncontrolled development continues to occur on our barrier islands. Both money and human lives will be lost.

For example, structures such as groins and seawalls, built to provide some storm protection for island residents are partially paid for by federal taxpayers. Costs are shared on a 70% federal/30% state matching basis. Construction costs are high and continually escalating. The 10-mile-long Galveston seawall was built in three stages from 1902 to 1963 at a cost of $15 million. If the seawall was extended only 5 miles on the western end of the island, the cost of this construction at today's prices would be in excess of $50 million.

Bridges which connect the barrier island systems with the mainland are another cost associated with island development. Although most intracoastal bridges do not cost more per square foot than comparable mainland bridges, their length results in an enormous total cost. For example, the Queen Isabella Causeway to South Padre Island, the longest bridge in Texas, cost more than $27.4 million to construct in 1977 dollars. The John F. Kennedy Causeway providing access from Corpus Christi to North Padre Island cost more than $14 million at 1977 dollar amounts.

Bridge and road construction is funded on a 70% federal/30% state matching basis by the Federal Highway Administration (FHWA). From 1976 to 1978 alone, FHWA provided more than $37 million in matching funds to state and local governments for the development of roads and highways on barrier islands.

The installation of water lines to barrier islands is also considerably more expensive than comparable mainland installation because of the cost of protecting materials from saltwater corrosion and other added costs associated with underwater construction. Several pipeline installations reviewed have shown the cost of the underwater portion of the pipeline route was 2.5 times that of the dryland portion. The Federal Economic Development Administration has helped fund several of these pipeline installations usually on a 60% federal/40% local basis.

What all of these points are leading to is that as long as there are federal subsidies to encourage development on barrier islands, development will continue without regard for resultant adverse impacts in conjunction with the tremendous monetary losses. A significant amount of these losses are paid for not by the residents of the islands but by all taxpayers. The proposed legislation cited as the "Coastal Barrier Resources Act," appears to be a vehicle for providing the much needed management and thus control of the rapid development of our barrier islands. Further, these islands are very dynamic and delicate, yet they provide a most valuable and essential function in the protection to our coastal mainland communities and economy. The state, region, and nation all stand to benefit by added protection of the barrier island systems.

In conclusion, I again want to emphasize that I am not against development of our coastal area, in fact, I am in support of the coastal region of Texas which is one of the most economically productive areas in the nation; especially for petrochemical production, oil and gas refineries, commercial fishing, agriculture, tourism,and the wide array of nature-related activities. Most, if not all of these interests, had the knowledge and foresight not to locate on the barrier islands. I am, though, opposed to the continued encouragement of developing the islands through federal subsidies at the expense of all taxpayers for the benefit of the few. For all interests to benefit, these islands must be better managed and protected.

Thank you for allowing me to make this presentation to you today.

Sincerely,

Bob Armstrong,

Bob Armstrong
Land Commissioner

BA/jb

STATEMENT
by
Sharron Stewart, Member
National Advisory Committee on Oceans and Atmosphere (NACOA)
before the
Subcommittee on Environmental Pollution
Committee on Environment and Public Works
U.S. Senate
February 3, 1982

Mr. Chairman and Members of the Subcommittee:

I am pleased to speak today on behalf of the National Advisory Committee on Oceans and Atmosphere. NACOA is a non-Federal, 18-member body, appointed by the President; members represent industrial, scientific, and environmental concerns associated with marine, atmospheric, hydrologic, and coastal zone matters. Our enabling legislation (Public Law 95-63) mandates that we advise both the President and Congress on these matters.

We appreciate this opportunity to present our views on the proposed "Coastal Barrier Resources Act."

Findings

NACOA supports the Coastal Barrier Resources Act proposed by Senator Chafee (S.1018), because we believe it would have the highly desirable effects of reducing Federal expenditures and development subsidies in the disaster-prone coastal barrier areas, and of preserving these vulnerable coastal areas and their associated fisheries and wildlife habitats. Federally subsidized flood insurance, road and bridge construction, sewer installation, and the like have certainly contributed to development in coastal barrier areas. Such development has had negative effects in some areas: barrier island erosion, destruction of estuarine habitats, and increasing storm evacuation problems are examples.

NACOA believes that it should not be Federal policy to foster such effects, purposely or inadvertently, through continuing to subsidize further development of our coastal barrier areas.

The Department of the Interior (DOI) has invested several years of effort in preparing a comprehensive inventory of the Nation's barrier islands in response to Presidential directives issued in 1977. We thus support the proposal in S.1018 that the Secretary of the Interior develop a set of maps delineating undeveloped coastal barrier areas. We also support all limitations and exceptions to Federal spending in undeveloped coastal barrier areas as presented in the proposed bill.

Recommendations

NACOA recommends five changes to the proposed legislation that we believe would further strengthen the bill:

1. Apply legislation nationally.

   As written, the Coastal Barrier Resources bill is restricted in its application to the U.S. Atlantic and Gulf coasts. We accept the proposed definiton of coastal barriers, with the inclusion of "all associated aquatic habitats . . . , " but believe that this definition should be applied nationally, and should include the Great Lakes. Although the number of coastal barrier areas added to the inventory would probably be small, NACOA believes that a national scope to the legislation would be more reasonable and equitable.

2. Increase Secretary of the Interior's interaction with State Coastal Zone Management (CZM) programs.

   The Nation has invested funds for nearly a decade to encourage and guide the growth of State CZM programs, including State inventories of their coastal resources. NACOA believes that the legislation should require a more formal interaction between the Secretary of the Interior and the State CZM programs. In instances where DOI maps disagree with resource maps developed by State CZM programs, and where agreement cannot be reached, NACOA recommends that disputes be arbitrated by the Secretary of Commerce.

3. Clarify Federal flood insurance prohibition.

   Current language in the Omnibus Budget Reconciliation Act of 1981 (P.L. 97-35) prohibits new Federal flood insurance policies after October 1983 in undeveloped coastal barrier areas that are to be designated by the Secretary of the Interior by October 1982. NACOA is concerned that these provisions might easily be subject to change in the fiscal year 1983 appropriations process, and in the fiscal year 1983 reauthorization of the Federal flood insurance program. To show Congressional intent that this prohibition should have a continuity not subject to reconciliation, or other non-oversight processes, NACOA recommends that S.1018 contain the same language with regard to Federal flood insurance prohibitions that has been included in the Onmnibus Budget Reconciliation Act of 1981.

4. Implement all spending prohibitions at the same time.

   To ensure consistent and orderly implementation of this legislation, NACOA recommends that all listed limitations on Federal expenditures in undeveloped coastal barrier areas become effective at the same time as the flood insurance prohibitions -- in October 1983.

5

5. Clarify definition of "undeveloped" areas and "grandfathering" provisions.

We further recommend that some clarifying language be added concerning the exact criteria to be used in determining whether an area is to be considered developed or undeveloped, particularly with respect to prior actions. For example, a developer with a master plan approved by local authorities, with acreage purchased, and building permits already obtained, has made significant investment and some progress toward development. Whether or not such progress constitutes "development" of an area for the purposes of this bill, thus allowing Federally-funded infrastructure to follow, should be further clarified. NACOA recommends that the Secretary of the Interior produce an exacting definiton of "undeveloped", and publish it for public comment (The "Definitions and Delineation Criteria" being established for areas of Federal flood insurance prohibition under the Omnibus Budget Reconciliation Act may also be suitable for the purposes of S.1918.) The maps comprising the Coastal Barrier Resources System would then be refined using this definition.

In summary, NACOA feels that (with these changes incorporated) the proposed Coastal Barrier Resources Act will be highly desirable because it will both reduce Federal expenditures in disaster-prone coastal barrier areas, and preserve these valuable coastal areas and aquatic habitats by discouraging further development.

TESTIMONY OF THE
COASTAL STATES ORGANIZATION
BEFORE THE
SENATE ENVIRONMENTAL POLLUTION SUBCOMMITTEE
OF THE
ENVIRONMENT AND PUBLIC WORKS COMMITTEE

FEBRUARY 3, 1982

STATEMENT OF THE CSO ON S-1018-

Good morning, I am Arthur J. Rocque, Jr., Director of Planning of the Connecticut Department of Environmental Protection and Chairman of the Coastal States Organization. CSO is a membership organization of those states, commonwealths and territories having an ocean, gulf of Great Lakes boundary. Members of CSO and its governing body are formally appointed by their respective governors. The purpose of the organization is to represent and promote the states perspectives, developed by consensus, on coastal and marine related issues.

CSO has evolved a particularly effective and mutually beneficial relationship with those committees of the U.S. Congress with jurisdiction over coastal and marine programs. CSO appreciates this opportunity to express our views on S-1018, the Coastal Barrier Resources Act.

As you are aware, Mr. Chairman, the CSO was actively involved in the reauthorization of the Coastal Zone Management Act in 1980. As part of the reauthorization of the CZMA the national policy section was expanded to include the following: "The Congress finds and declares that it is the National Policy:

> "to encourage and assist the states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone, giving full consideration to ecological, cultural, historic, and esthetic values as well as to needs for economic development, which programs should at least provide for --

> "the protection of natural resources, including wetlands, floodplains, estuaries, beaches, dunes, barrier islands, coral reefs, and fish and wildlife and their habitat, within the coastal zone,
>
> the management of coastal development to minimize the loss of life and property caused by improper development in flood-prone, storm surge, geological hazard, and erosion-prone areas and in areas of subsidence and saltwater intrusion, and by the destruction of natural protective features such as beaches, dunes, wetlands, and barrier islands (emphasis added)

Mr. Chairman, coastal states, primarily through the vehicle of their Coastal Zone Management Programs are doing their utmost to carry out the national policy towards coastal barriers as articulated in the CZMA. S-1018, if enacted, will help implement the national policies in the CZMA and will complement state efforts at coastal barrier protection. The time has come for decisive and swift Congressional action to stem the rising tide of illogical federal financial support on undeveloped coastal barriers. The CSO, in a resolution approved in October of 1980, called on the Congress to expedite the passage of strong barrier islands and barrier beaches protection legislation. I am pleased to be able to report to you that the CSO at its annual meeting in November of 1981 adopted the following resolution:

COASTAL STATES ORGANIZATION POSITION
ON
BARRIER ISLANDS AND BARRIER BEACHES

The Barrier Islands and Barrier Beaches Committee recommends that the CSO support the general concept of the Evans/Chaffee bills, but wishes to express the following concerns:

1. The definition of "developed" and "undeveloped" should be more clearly stated.
2. Maps depicting undeveloped barrier islands must be reviewed in close consultation with the states.
3. Coastal Zone Management Programs must be integrally involved in this review and the review of the definition of "developed" and "undeveloped".
4. The Department of Commerce should be recognized as having a role in the designation process.

If I were to leave you with just one thought today, it would be that the CSO supports the passage of S-1018 by the 97th Congress as swiftly as possible. It has been estimated by the Department of Interior that coastal barriers are becoming developed at a rate of 6,000 acres per year. It is also projected that the federal cost to develop just 50 percent of the remaining undeveloped coastal barriers will be between $4 - $11 billion over the next 20 years unless a measure such as S-1018 is adopted.

We are in total agreement, Mr. Chairman, with your statement that "In the context of this country's current fiscal austerity, subsidizing development of coastal barriers is a travesty."

Since 1980 and, in fact, since President Carter's 1977 Environmental Message the evidence has been mounting that the current system of federal policies toward coastal barriers are at best, inconsistent, and at worst, actually destructive of the valuable coastal barrier resources. The preponderance of the evidence clearly shows that coastal barriers are among the least suitable environments for the construction of homes, condominiums, hotels, roads and other structures meant to last more than a season. The scientific analysis of coastal barriers documents their instability and their susceptibility to overwash from coastal storms. Political and economic analysis indicate the folly of investing taxpayer's money to support and subsidize private development projects on coastal barriers.

You are to be congratulated for proposing to get the federal government out of the business of subsidizing development of coastal barriers. The risk of developing hazardous areas must be born completely by those private interests who propose the development in the first place. S-1018 simply and efficiently removes the federal financial and infrastructural support of such development. We argue that, like federal support of certain agricultural commodities, the decision to continue or discontinue such support is a public policy decision of the U.S. Congress. In this case the CSO recommends, in the strongest terms, that the correct public policy toward undeveloped coastal barriers is that which is contained in S-1018. It makes no sense, both from the environmental and economic perspectives to continue the current inconsistent and destructive set of federal policies and programs. It is unconscionable, that, in a year of severe budget cutting of social programs, federal dollars continue to subsidize second homes and beachfront condominiums. It is important to note that S-1018 does not prohibit privately initiated and financed development of coastal barriers so long as such development complies with state and local law. Nor does S-1018 authorize the purchase of land by the federal government. If the private insurance industry is reluctant to insure structures within the 100 year floodplain on coastal barriers, logic dictates that the federal government should exercise the same caution.

In conclusion, Mr. Chairman, CSO supports and commends you for your efforts in this important public policy matter. We feel that our concerns with S-1018 warrant serious consideration since the involvement of state coastal zone management programs would involve those persons in each state who know most about the problem you attempt to address. We stand ready to assist you to expedite passage of coastal barrier protection legislation this Session which addresses our four concerns. Thank you for providing me with the opportunity to express the views of the CSO on S-1018.

Statement of

Senator William S. Cohen
on S. 1018
The Coastal Barriers Resources Act

submitted to the

Environmental Pollution Subcommittee
of the
Committee on Environment and Public Works

U.S. Senate

Feb. 3, 1982

I am pleased that the Senate Environmental Pollution Subcommittee is continuing its hearings this morning on the subject of coastal barrier island protection. I am a cosponsor of S. 1018, the Coastal Barrier Resources Act, which seeks to protect the last remaining undeveloped barrier islands and spits on the Atlantic and Gulf coasts.

The Coastal Barrier Resources Act would prohibit any federal subsidies for barrier island development. It does not forbid development -- it only places the financial responsibility on the individuals willing to take the high risk of hazard-prone construction on barrier islands. In this climate of reduced federal spending, budget cuts and tax reductions, the Coastal Barrier Resources Act is a sound piece of legislation, and deserves careful consideration by this Subcommittee.

Congress took an important first step in reducing a prominent federal subsidy when it included in the Omnibus Reconciliation Act a provision banning federal flood insurance on undeveloped coastal barriers along the Atlantic and Gulf coasts after October 1983. The Secretary of the Interior has just issued a draft list of islands subject to the ban. The Interior Department worked closely with Maine State geologists and planners to develop a list of seven areas to be protected along the Maine coast. I hope this spirit of cooperation will be extended to other states as well.

Elimination of flood insurance will save the federal government an estimated $50 to $70 million annually. But other federal expenditures frequently associated with barrier island development--

water and sewer projects, wastewater treatment facilities, roads, grants for highway and bridge construction and shoreline stabilization, loan guarantees for home construction and disaster relief -- will cost the taxpayers half a billion dollars. The estimated federal cost of developing only half of the remaining undeveloped barrier islands and portions of islands ranges from $4 billion to $11 billion over the next 20 years.

The Coastal Barrier Resources Act would end this drain on the federal treasury. It will save the taxpayers millions of dollars and, at the same time, protect fragile undeveloped barrier beaches and islands. By terminating the use of federal money for the development of these fragile areas, we can save the taxpayers money as well as protect the wildlife resources inhabiting these areas.

Despite their vulnerability to the uncontrollable forces of nature, barrier islands are being developed at a rate of 5,000 to 6,000 acres a year, twice the national rate for other areas. This steady development jeopardizes the large fish and waterfowl populations which inhabit these areas. The proposed legislation would establish a Coastal Barrier Resources System, and would require the Department of the Interior to review the effect of the legislation on the affected states and report to Congress at three and five year intervals.

I was pleased that Interior Secretary Watt, in previous testimony before this Subcommittee, called the bill "a balanced and light-handed approach to environmental concerns." He said the bill would "chart a sensible course to conserve both hard-earned tax dollars and the natural resources of coastal barriers."

By ending federal flood insurance on these fragile areas, we have taken an important first step. We can now take an important additional step by ending the other unwise federal subsidies as well. Therefore, I urge my colleagues on the Subcommitee to give prompt consideration to the Coastal Barrier Resources Act.

American Red Cross

Office of the President

National Headquarters
Washington, D.C. 20006

January 29, 1982

Dear Senator Chaffee:

As a Congressionally chartered disaster relief agency with more than a century's experience dealing with the impact of natural hazards on people and their homes, the American Red Cross supports legislation that would prevent further residential development of the barrier islands.

While your bill, S. 1018, and its counterpart, H.R. 3252, focus on the protection and conservation of fish and wildlife resources related to our nation's offshore islands, it would serve also to reduce the potential hazard to families who might live or vacation in such locations. Voluntary relief agencies, whose resources are finite, and the federal government through its relief and flood insurance programs, have for too long a time carried the burden of the human needs created by the impact of hurricanes and other storms on families living on barrier islands.

In September of 1980, I wrote to Congressman Phillip Burton---in support of barrier islands legislation he was then studying--as follows:

"The vast development of residential and resort areas on these islands in the past years since World War II has placed large populations in potentially hazardous locations from Texas to New England. Red Cross and governmental relief actions that were necessary following severe coastal storms and hurricanes testify to the dangers to life and property that such development has created. We understand further that such development also potentially endangers shore-side areas as the protective capabilities of the barrier islands can be wakened by the intrusion of man made structures and rearrangements of terrain."

Just as we support efforts of the National Flood Insurance Program to move in the direction of relocating flood damaging properties away from the flood plains, the Red Cross believes that steps should be taken to discourage further commercial and residential development of the barrier islands. For this reason, we believe the enactment of S. 1018 and H.R. 3252 would emphasize hazard mitigation and prevent people from building in the path of future danger.

Sincerely,

George M. Elsey

The Honorable John H. Chaffee
United States Senate
Washington, D. C.

Center for
Environmental
Education

October 28, 1981.

Honorable Senator John H. Chafee
Dirksen Senate Office Building
Washington, DC 20510

Dear Senator Chafee:

The Center for Environmental Education commends you for introducing the Coastal Barrier Resources Act (S.1018) into the Senate and for holding a hearing on the bill. I attended the October 21 hearing before the Subcommittee on Environmental Pollution and would like to correct the testimony given by Mr. Jim Scott of the National Association of Home Builders.

Mr. Scott and you were discussing the costs of beachfront property when he stated that the federal government was spending $500 for each overnight visitor at Cumberland Island National Seashore in Georgia. This figure is very inaccurate for the following reasons.

I contacted Bill Harris, superintendent of Cumberland Island National Seashore, on October 26 for verification of Mr. Scott's $500 figure. Mr. Harris said this figure is "inaccurate" and that "less money, time and effort is put into the overnight facilities than anywhere else in the park. There is a $2 visitor charge at Cumberland, $1 for children and senior citizens. There is no extra fee for overnight campers.

Last year, 36,751 visitors used the park, 19,128 camped overnight. The total operating budget of the park last year was $879,000 which covers administration, transportation, communication, clothing, special projects and the minor costs associated with maintaining the overnight camping facilities. These costs include one ranger patrol per day and some clean-up of the campgrounds and the one bath house. The largest cost associated with visitors to the park is the half-hour boat ride from the dock at St. Mary to the park.

Calculating the costs for overnight camping is difficult according to Superintendent Harris. One obvious method, using 1981 figures, is to divide the total operating costs of the park by the number of overnight visitors ($879,000/19,128 overnight visitors). The result $46 per overnight visitor, is far from the $500 figure quoted by Mr. Scott. The $46 figure is an extreme overestimate since only a small part of the total operating costs of the park are associated with overnight visitors.

624 9th Street NW
Washington DC 20001
(202) 737-3600

Another calculation is to figure the cost per visitor, not just overnight visitors, by dividing the total operating costs of the park by the number of total visitors ($879,000/36,751 visitors). The result, $24 per visitor is also an overestimate since not all total operating costs of the park are associated with visitors.

Therefore Senator, the $500 per overnight visitor quoted by Mr. Scott of the National Association of Home Builders is extremely erroneous and should be corrected in the record I hope that other statements made by Mr. Scott are more accurate.

Thank you for your attention to this matter and please contact me if I can be of further assistance to you or your staff on this very important bill.

Sincerely yours,

James Sternberg

James Sternberg
Research Associate

cc Mr. James Scott

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336

Committee to Preserve Assateague Island

January 28, 1982

STATEMENT OF THE
COMMITTEE TO PRESERVE ASSATEAGUE ISLAND
ON THE
COASTAL BARRIER RESOURCES ACT
S.B. 1018

Statement to be made part of the hearing record; hearing Wednesday, February 3, 1982 - Senator John H. Chafee, Chairman, Senate Subcommittee on Environmental Pollution, of the Senate Committee on Environment & Public Works

My name is Judith Johnson and I am Chairman of the Committee to Preserve Assateague Island. People's concern over barrier islands, I think, is well illustrated by the fact that our membership has grown from 300 individual members last May to 686 as of this date, and 62 organization members to 99. This doubling of our members has been due to the public being vigorously opposed to the efforts of the United and Assateague Mobile Sportfishermen's Association to take over the Wild Beach at Chincoteague National Wildlife Refuge on Assateague (they already have over half the Maryland/Assateague beach, and 6 miles of the Refuge beach), and also to excessive development plans on the part of Assateague Island National Seashore. We also have many members who recognize the folly of the type of development that has taken place at Ocean City, Maryland, and the tremendous expense being considered by Maryland to just rebuild the beach at Ocean City. The state has drawn up plans for groins with sand-fill, which would give no storm protection to buildings but provide a beach for tourists, at a cost of $17.5 million.

The Corps of Engineers has also drawn up plans to provide hurricane protection against a 100-year storm and a 200 ft. wide beach at a cost of $27 million in 1980 dollars (this would be non-structural except for a wall to protect the boardwalk at the south end of Ocean City).

In the meantime, although sea level is rising and the beach is disappearing, Ocean City continues to permit building where the duneline used to be, and the building inspector admits he has no idea how deeply underpinnings are placed by the condominiums and motel builders. It is a disaster waiting to happen, and it is totally unfair for the federal government and taxpayers throughout the country to be forced to pay for the federal flood insurance and disaster assistance when the inevitable storm strikes. The federal government should not be responsible for any share of the hurricane protection plan of the Corps of Engineers.

The Committee to Preserve Assateague gives its full support to S. 1018 and hopes the bill will be adopted by Congress promptly. The federal government, in these times of tight budgets and mind-boggling deficits, must recognize the folly of subsidizing roads, bridges, sewage treatment plants and federal flood insurance on new construction. Federal flood insurance pay-outs are second only to social security in cost to the government. How can you justify the government putting more and more money into encouraging development in such hazard-prone areas as barrier islands, when it is inevitable that catastrophies will occur which will wipe out a large percentage of the development?

In considering areas that would be covered by the Coastal Barrier Resources Act and the Reconciliation Act passed last year which would cut off federal flood insurance in 1983 for non-developed barrier islands, a broad view should be taken so that even if there are a few structures on an island or portion of an island, and even if developers have plans for development or have platted lots, THESE AREAS WILL NOT BE COVERED BY FEDERAL FLOOD INSURANCE! The estimated Federal cost to develop only 50% of the remaining undeveloped barrier islands and portions of islands is approximately $11.72 billion over the next 20 years.

While it is difficult to get hard data on the financial assistance provided by federal agencies for development on barrier islands, the following figures compiled by Joseph P. Biniek, Environment & Natural Resources Policy Division, Congressional Research Service, give an idea of the magnitude of this wasteful expenditure: EBA projects on barrier islands as of March 28, 1980, amounted to $92.2 million; OCZM funded $10 million; DOT funded $43.0 million; the COE put out $378.1 million in barrier island projects; FmHa paid out $53.3 million; FIA deficits amounted to $13.9 million in 1978-1979; Disaster Assistance expended was $11.0 million; and EPA financed $110.1 million of barrier island projects. From FY 1976 through 1978, Federal-Aid Highway expenditures amounted to $33.2 million, and, in addition, $38 million was approved for reconstruction of the bridge to Dauphin Island, Alabama, destroyed in storm Frederick, which also destroyed all but 20 some buildings on the island. None of this makes any fiscal sense, and putting money into barrier island development is the first thing the federal government should cut if it is concerned about the welfare of the people and eliminating unnecessary expenditures.

How can anyone be blind to the economic advantages of stopping development on undeveloped barrier islands? How can anyone help but see that the Federal government should get out of the costly business of subsidizing development. and then, after it is all destroyed by coastal storms, paying for rebuilding everything, cleaning up and disaster relief? I ask you, does that make any sense???

Barrier islands are no financial burden when left to nature. Not only do they act to protect the mainland, but the whole barrier island system, of islands, marshes and coastal bays, form a vitally important ecosystem and link in providing essential commercial and recreational fishery resources. They provide a habitat for all manner of wildlife, mammals, invertebrates and migrating and nesting birds. They provide people with aesthetic pleasure and a sense of spiritual uplift besides an area for many types of recreation.

Our few remaining barrier islands should be designated historic landmarks so that our children and grandchildren can know what America looked like when our forefathers first stepped foot on these shores.

We urge the passage of S. 1018 due to the fact that it makes fiscal sense to stop Federal spending in these shifting areas where development is totally inappropriate. People can far better enjoy the recreational advantages and beaches of barrier islands if they are left in their natural state.

Judith C. Johnson

Judith C. Johnson, Chairman,
COMMITTEE TO PRESERVE ASSATEAGUE ISLAND

THE GARDEN CLUB OF AMERICA
598 MADISON AVENUE, NEW YORK, N. Y. 10022
TELEPHONE (212) 753-8287

PRESIDENT
MRS. SAMUEL M. BEATTIE

NATIONAL AFFAIRS AND LEGISLATION COMMITTEE
CHAIRMAN
MRS. ROBERT H. GLORE
600 N. MAYFLOWER ROAD
LAKE FOREST, IL 60045

January 2, 1982

Senator John Chafee
Attn: Bob Hurley, Aide
Room 5229
Dirksen Senate Office Building
Washington, D. C. 20510

Dear Senator Chafee:

The Garden Club of America strongly supports the Barrier Island Bill, S.1018.

On behalf of our 14,000 members in 184 clubs around the country, we would like to have the enclosed resolution made part of the record.

Sincerely yours,

Mrs. Robert Hixon Glore
Chairman
National Affairs & Legislation

Garden Club of America
Resolution on
The Barrier Island Bill
S.1018

WHEREAS, Barrier Islands are unstable areas, consisting of unconsolidated sedimentary materials and subject to wave, tidal and wind energies, all of which make them unsuitable for development, and

WHEREAS, unfortunately, many Federal programs have subsidized development in these high hazard areas, and coastal development has increased at an alarming rate in recent years, and

WHEREAS, severe losses from storm damage have likewise greatly increased, with property damage from storm Frederick in 1979 exceeding $2 billion; and

WHEREAS, Federal flood insurance in coastal areas accounts for 3% of the premiums paid into the program but more than 22% of the total claims; and

WHEREAS, the Federal Government is now recognizing the need to curtail unnecessary and imprudent expenditures, and it would save billions of dollars if the remaining undeveloped and partially undeveloped barrier islands were protected from development; and

WHEREAS, outlays for federal disaster assistance from 1972 to 1979 totaled almost $10,000,000,000; and

WHEREAS, the barrier island ecosystem, containing islands, marshes, wetlands and water, provides a habitat upon which many aquatic organisms, shellfish, finfish, migratory and nesting birds, and other wildlife depend, and there is a need to protect and conserve fish and wildlife resources;

NOW, THEREFORE, BE IT RESOLVED: That in view of the economic advantages, as well as environmental considerations, the Garden Club of America supports a strong barrier island bill which would eliminate subsidies or give other forms of direct or indirect Federal financial assistance for development on barrier islands along the Atlantic and Gulf coasts, and which would include an end to federal flood insurance policies with respect to new construction.

AND BE IT FURTHER RESOLVED: That the Garden Club of America supports the acquisition of barrier islands for national parks and wildlife refuges, as economic studies indicate continuance of current programs would cost five times greater than public purchase of the remaining approximately 480,000 acres of undeveloped, unprotected barrier islands.

The Garden Club of America supports S.1018.

Monmouth County Planning Board

Chairman
ELWOOD L. BAXTER

Vice Chairman
TAYLOR PALMER, JR.

Secretary
KATHRYN E. WILSON

HALL OF RECORDS ANNEX
EAST MAIN STREET
FREEHOLD, NEW JERSEY 07728
(201) 431-7460

ROBERT D. HALSEY
Director of County Planning

1 December 1981

Hon. John H. Chafee
Room 3103, Dirksen (NSOB) Building
Washington, D.C. 20515

Dear Senator Chafee:

At its meeting on September 2, the Monmouth County Planning Board voted unaimously to (1) reaffirm its position in favor of changes in the Federal Flood Insurance Program, which is up for reauthorization (2) recommend additional funding for relocation assistance and property acquisition under Sec. 1362 of the National Flood Insurance Act, and (3) to support the elimination of Federal development assistance and flood insurance for undeveloped barrier islands. The action was taken on the recommendation of the Monmouth County Environmental Council.

The adopted Monmouth County General Development Plan designates the area's inland floodplains as conservation and drainage areas. The County Planning Board and Environmental Council have been particularly concerned over the impact of subsidized Federal Flood insurance on shorefront land use in the coastal area.

The extensive development of the shoreline for uses which do not require a waterfront location interferes with natural coastal processes and occupies land better suited for recreation, commercial, navigation, and other water-dependent uses. Development in the coastal flooding and erosion areas has resulted in increased public expenditures on shore protection measures and storm damage claims. The Federal Flood Insurance Program, which provides subsidized coverage for building damages, has actually encouraged construction in the flood hazard areas, and funding for shore protection programs continues to be inadequate at a time when the need for sand replenishment has never been greater. Therefore, it will be impossible to guarantee the protection of structures built in the high-risk erosion areas.

For these reasons, the Planning Board and Environmental Council have taken the position in the past that the Flood Insurance Program should be modified to provide for relocation assistance rather than money for reconstruction in the same location. Public investments in sewer lines and other infrastructure should be restricted in these areas. The elimination of Federal Flood Insurance would be the most important disincentive for unsound development in the high hazard areas, as any building would be at the owner's own risk.

The Planning Board is pleased that the Congress and Federal Emergency Management Agency have recently stepped up efforts to revise Federal policies and programs affecting development in the Nation's coastal and riverine flood areas and to balance the interests of the general public with those of the flood zone property owners. The barrier islands legislation pending in Congress (1018 and HR 3253), for example, would limit Federal development assistance for undeveloped barrier islands.

The Federal Emergency Management Agency which was subsidizing flood insurance ploicyholders in the coastal high-velocity zone at the rate of $432 per policy per year, now considers the stability of the structure as well as flood elevation in calculating below the official storm wave height. In addition $5,000,000 has been made available under Sec. 1362 of the National Flood Insurance Act for several pilot relocation programs. The Federal government will relocate the owners of flood-damaged structures in areas subject to frequent flooding, acquire their property, and transfer the title to the local community, which agrees to keep the land in open space or other suitable uses. This program should be expanded.

The Planning Board respectfully urges your support for the actions proposed above and looks forward to learning your views on these issues.

Very truly yours,

Robert W. Clark dw

Robert W. Clark
DIRECTOR OF COUNTY PLANNING

RWC:DWM:dw
cc: E. Baxter, Chairman, MCPB
R. Huguley, MCPB

Southwest Florida Regional Planning Council

2121 West First Street, Fort Myers, Florida 33901
(813) 334-7382

November 19, 1981

The Honorable John H. Chafee
United States Senate
Room 3105, Dirksen Office Building
Washington, D. C. 20510

Dear Senator Chafee:

The Southwest Florida Regional Planning Council, at its regular monthly meeting on October 15, 1981, endorsed Resolution No. 81-4 in support of the proposed Coastal Barrier Resources Act under House Bill HR-3252 and Senate Bill S-1018. The reason we are sending you this resolution is to notify you of the Council's position on this legislation so that you may consider it in your participation in deliberations on this subject.

If I may be of any further assistance, or if you require any information concerning Southwest Florida Coastal Barrier Resources, please do not hesitate to contact me.

Thank you for your consideration in this matter.

Sincerely,

SOUTHWEST FLORIDA REGIONAL
PLANNING COUNCIL

Roland H Eastwood

Roland H. Eastwood
Executive Director

RHE/DYB/je

Enclosures

RESOLUTION NO. 81-4

RESOLUTION OF THE SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL URGING SUPPORT FOR THE COASTAL BARRIER RESOURCES ACT UNDER HOUSE BILL HR-3252 AND SENATE BILL S-1018

WHEREAS, The Southwest Florida Regional Planning Council is composed of representatives from Charlotte, Collier, Glades, Hendry, Lee, and Sarasota Counties; and

WHEREAS, the Council is concerned with the protection and conservation of undeveloped barrier islands and wise use of developed islands;

NOW, THEREFORE, BE IT RESOLVED BY THE SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL, that:

1. The Council supports the intent of the Coastal Barrier Resources Act HR-3252 and S-1018 now pending before the United States Congress which will prohibit federal expenditures on and financial assistance for development of coastal barriers, or portions thereof, which are not presently developed; and

2. The Council recommends that the Congress give special attention to include the protection of Cape Romano and Keewaydin Islands in Collier County; Lover's Key Complex, Sanibel Island Complex, and Cayo Costa Island in Lee County; Bocilla Island Complex in Charlotte County and Casey Key in Sarasota County as described in the Coastal Barrier Resources Act; and

3. The Council recommends that the Secretary of the Interior consult and cooperate with the local, regional, and state governments in discharging his/her responsibilities under the provisions of this Bill; and

4. That Federal and/or State funds be made available to ensure acquisition of these barrier islands before ever-increasing development pressures preclude conservation opportunities; and

5. That the appropriate representatives of the Regional Council in conjunction with the local and State Officials exercise leadership and initiative to protect and preserve our few remaining undeveloped barrier islands in the long-term public interests; and

6. That the intent of this resolution is solely an indication by the Council as identification of urgent need for the protection and conservation of undeveloped islands and to join other local, state and federal governments and civic organizations who have expressed support for preserving the islands identified in the Coastal Barrier Resources Act; and,

7. The Council recognizes that specific local governments through their own resolutions of support for these bills are identifying specific needs for their community and, therefore, also supports those individual resolutions through its action taken on this date.

PASSED in Public Session of the Southwest Florida Regional Planning Council held in Fort Myers, Florida, this 15 day of October, A.D. 1981.

Ronald W Norman
Chairman

Approved this 15th day of October, A.D. 1981.

tampa bay
regional
planning
council

9455 Koger Boulevard
St. Petersburg, FL 33702
(813) 577-5151/Tampa 224-9380

January 19, 1982

The Honorable John Chafee
Chairman, Senate Subcommittee on
  Environmental Pollution
United States Senate
Washington, D.C. 20510

Dear Senator Chafee:

The enclosed Resolution #82-1 was adopted by the Tampa Bay Regional Planning Council on January 15, 1982. Resolution #82-1 supports the "Coastal Barrier Resources Act" with its recommendations to prohibit federal subsidies for flood insurance, bridge construction, sewage treatment facilities and other construction on undeveloped barrier islands.

The Council is dedicated to the support of policies and actions which are directed toward the preservation and most beneficial use of Florida's coastal resources. The importance of Florida's barrier islands as storm buffers and their economic value as fish and recreational resources is unquestioned. The rapid spread of coastal development is depleting these resources. The Council is concerned that this depletion be halted so that Florida's sensitive coastal resources will remain viable.

Your support will help to protect and promote the preservation and restoration of Florida's barrier islands and, therefore, is greatly appreciated.

Sincerely,

Jan K. Platt

Jan K. Platt
Chairman

JKP/mas

Chairman Frederick Allen
Councilman, City of Gulfport

Vice Chairman Jan Platt
Commissioner, Hillsborough County

Secretary/Treasurer Jeanne Malchon
Governor's Appointee, Pinellas County

W.A. Ockunzzi
Executive Director

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genda Item #8
1/15/82

RESOLUTION #82-1
SUPPORT FOR THE COASTAL BARRIER RESOURCES ACT

WHEREAS, barrier islands, in their natural state, are the mainland's first line of defense against the fury of storms and hurricanes; and

WHEREAS, barrier islands create and maintain the estuaries which nurture vital fish stocks so important for commercial and recreational fishing; and

WHEREAS, a shifting of the economic burden of coastal barrier development to the private sector through the modification of federal programs is an effective way to protect this interest; and

WHEREAS, development of coastal barrier islands is encouraged by federal subsidies and creates substantial risk to people and property leading to a progressively greater taxpayers' obligation in subsidizing disaster relief and reconstruction; and

WHEREAS, the Tampa Bay Regional Planning Council's adopted growth policy, Future of the Region states that the Council recognizes that residential land uses should be planned efficiently for future growth in areas most suitable with respect to the protection of environmental and natural resources and the orderly extension and expansion of public facilities and services; and

WHEREAS, it is Council policy to encourage and promote sound coastal management to ensure that maximum long-term benefits are attained in the use of the coastal zone; and

WHEREAS, it is Council policy that the costs of new growth be borne primarily by those responsible for that growth;

NOW, THEREFORE, BE IT RESOLVED, that the Tampa Bay Regional Planning Council supports the Coastal Barrier Resources Act, H.R. 3252 and S 1018; and

BE IT FURTHER RESOLVED, that a copy of this resolution be transmitted to the Region's Congressional Delegation, Secretary of the United States Department of the Interior, Chairman of the Senate Committee on Environment and Public Works, Chairman of the House Committee on Merchant Marine and Fisheries, Chairman of the Senate Subcommittee on Environmental Pollution, Chairman of the House Subcommittee on Fisheries, Wildlife Conservation and the Environment, the Governor of the State of Florida, the Secretary of the Florida Department of Veteran and Community Affairs, the Secretary of the Florida Department of Natural Resources, the Secretary of the Florida Department of Environmental Regulation, and all Florida Regional Planning Councils.

Chairman

ATTEST: Jan K. Platt
Vice-Chairman

The above Resolution was approved by the majority vote of the Council, this 15th day of January, 1982.